

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MAN 12,8a

2. Edition

En

PE 8 A 95 D 320 LS 2389 RQ 250/1250 AB 845 DR
LS 2421 RQV250-1250 AB 846 DR ./.

supersedes
company
engine

See page 2!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9+0,1 (2389) mm (from BDC) cyl. 8
1,7+0,1 (2421)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,5 - 8,0	0,4			
	6	3,2 - 4,2				
200	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ. .845DR

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Test specifications rev/min 6		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 12	
600	19,6-20,4	600	20,0	1275	18,8-19,2	560	0	180	9,4-11,6	800	19,8-20,0
1300	Breakaway	(Control lever ca. 49°)		1320	11,8-16,9			250	7,5-10,6	950	19,2-19,4
				1370	0 -10,6			350	3,3- 6,7	1000	19,2
				1450	0			460	0		

Torque-control travel on flyweight assembly dimension a = 0,2 mm

Speed regulation: At 1290-1305

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2		Control rod stop mm 3a		cm ³ /1000 strokes 5		Control rod travel mm 7	
1250	114,5-116,5 113,5-117,5	0,5 bar		800	118,5-122,5 117,5-123,5	250	7 mm RW
		0 bar			96,5-100,5 95,5-101,5		

Checking values in brackets

11.74

Testoil-ISO 4113

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1270	14,4-17,4	-	-	-	ca. 13	50	7,7-11,0	200	0,5-1,2
⑤	1320	9,8-14,4					150	6,6-9,8	480	3,2-4,0
	1400	1,0- 8,6					250	4,2-7,2	800	4,8-5,2
							350	0 -3,4	1270	8,3
							410	0	1420-1510	End (11)

Dimension 0 mm / 1200 U/min
0,4mm/ 600-900 U/min

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitation Note: changed to ... rev/min	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)								
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	
1250	114,5-116,5	0,5 bar 0 bar	800 500	118,5-122,5 96,5-100,5	250	7 mm RW Change-over point	80-100	U/min
		⑥a						

Checking values in brackets

1290-1305

*1 mm less control rod travel than col. 2

Cam sequence and angular cam spacing:

8 - 7 - 2 - 6 - 3 - 5 - 4 - 1 each 45°

Pay attention to RQ and RQV governors in accordance with VDT-WPP 001/4 6/7/8

Supplements and BMP 111/41!

D) Adjustment test at 700 min⁻¹ - decreasing pressure:

Setting 0.24-0.25 bar = 0.2-0.3 mm decrease in control-rod travel

Measurement 0.15 bar = 0.9-1.1 mm decrease in control-rod travel

Adjust by changing initial tension of helical spring after
noting down max. control-rod travel for preceding adjustment at
n = 800.

Position adjusting sleeve in LDA (manifold-pressure compensator) at 800
min⁻¹ - override LDA such that it makes contact, then turn back 2 turns and
secure!

When performing check, increase values for Section C, Columns 2 and 5 by
± 1 cm³!

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 STE 1,9a
Edition 9.64

En

PES 2 A 70 C 310 RS 2027

EP/RSV 200-1100 A1 B147 DL

supersedes

company Steyr-Daimler-Puch
engine WD 209 (30 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,5 - 7,0	0,3			
	6	1,2 - 1,9				
	18	10,9 - 11,9				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 62	1100 1130 1160	12 9,2 5,9	without auxiliary spring			ca. 27	200	6	1080	0
	1130 1160 1300	8,4-9,8 4,2- 7 0 - 1					100 200 350 450 600	19 - 21 5,7-6,3 1 -3,5 0 -2,8 0 - 1	900 700 600 300	0,4-0,6 0,9-1,1 1,7-1,9 2,1-2,3
2a			with auxiliary spring							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1080	43,0-45,0	1110-1130		500 700 900	59,0-62,0 50,0-53,0 45,5-48,5	110	15,2-15,8	RW	

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 MB 3,8 b
Edition 5.72

En

PES 4 A 80 C 410 RS2094,2206
.. RS2094,2206
(D) ..RS2094
..RS2094

EP/RSV250-1300A1B424D(1)
EP/RSV600-1225A1B424D(2)
EP/RSV300-1300A1B424D(3)
EP/RSV300-1400A2B424D(4)

supersedes DA13,8b
company (6,68)
engine Daimler-Benz
OM 314

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery "C" u. "D" cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	6	2,2 - 3,0	0,4			
	9	5,5 - 6,0				
	15	11,5 - 12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 73	1300	16,0	without auxiliary spring			ca. 26	250	6,0	1280	0
	1340	11,8					100	19 - 21	800	0,7-0,9
	1380	6,0					250	5,7-6,3	300	1,3-1,5
2a	1360	7,4-10,2	with auxiliary spring				400	2,0-4,0		
	1390	3,4- 6,5					600	0 - 1		
	1500	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min							
rev/min	cm ³ /1000 strokes	3	4	5	6	7	8	9	
1	2								
1280	55,0 - 57,0	1320	900	53,5-56,5	100	13,2-13,8			
(2)**	800	47,0 - 49,0	500	47,5-50,5	100	13,2-13,8			
(3)***	1280	55,0 - 57,0	1200	54,0-57,0	100	13,2-13,8			
		1325:0,5-1,0	900	52,0-55,0					
		mmRW	500	52,5-55,5					
(4)	****	300-1400	A2B424D						
	1380	ca. 48,5	1420(EP(RSV))						

Checking values in brackets

** **** 600-1225 A1B424D

*** **** 300-1300 A1B424D

**** with governors

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Testoil-ISO 4113

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Torque-control travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

600-1225 (2)

ca.72	1225	16,0	*			ca.37	600	6,0	as required	
	1270	12,0					100	19 - 21		
	1320	6,7					600	5,7-6,3		
	1300	7,3-10,2	**				700	1,4-3,6		
	1370	1,0- 4,2					800	0 - 1		
	1450	0 - 1								

300-1300 (3)

ca.73	1300	16,0	*			ca.27	300	6,0	1280	0
	1350	10,6					100	19 - 21		
	1390	4,6					300	5,7-6,3		
	1360	7,5-10,5	**				450	1,4-3,6		
	1400	2,6- 5,6					600	0 - 1		
	1500	0 - 1								

300-1400 (4)

ca.57	1400	16,0	*	without auxiliary spring	ca.22	300	6,0	1380	0
	1460	12,0				100	19 - 21		
	1520	6,8				300	5,7-6,3		
	1500	6,8-10,0	500	1,8-3,9					
	1600	1,8-4,3	700	0 - 1					
	1720	0-1	**	with auxiliary spring					

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 IHC 2,2 f
Edition 12.64

En

PES 4 A 60 B 420 LS 105 EP/RSV 250-750 A 4/18
LS 105 Z
LS 105 T

supersedes
company
engine

24.11.59
I H C
DD 132
DD 132S
DD 148

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	4,5 - 5,0	0,3			
	6	0,5 - 1,2				
	18	8,3 - 9,1				
200	6	0,3 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.45	750	16	without auxiliary spring			ca.22	250	5,5	730	0
	800	9					100	19 - 21	300	1,2-1,8
	830	4					250	5,2-5,8		
	800	7,5-10,5	with auxiliary spring				300	3,1-4,2		
	830	3 - 6,5					350	0 - 2,6		
	880	0 - 2,4					450	0 - 1		
2a	950	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40°C (104°F)		Note: changed to) rev/min							
rev/min 1	cm ³ /1000 strokes 2	3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
730	30,0-32,0		760						
730	42,5-44,5		760						
730	34,5-36,5		760						

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

A7

A7

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 IHC 2,2 k 2
Edition 12.64

En

PES 4 A 60 B 420 LS 105 EP/RSV 250-1200 A 2 A 18

supersedes 18.11.60
company I H C
engine DJ 132-D

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	4,5 - 5,0	0,3			
	6	0,5 - 1,2				
	18	8,3 - 9,1				
200	6	0,3 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 60	1200	16	without auxiliary spring			ca. 29	250	5,5	1180	0
	1350	8,8					100	19-21	500	0
	1440	3,8					250	5,2-5,8	300	1,2-1,8
2a	1350	7,2-10,2	with auxiliary spring				350	3-4		
	1400	3,8- 7,8					400	1-3		
	1500	0 - 3,2					450	0-2		
	1600	0 - 1					550	0-1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min							
rev/min	cm ³ /1000 strokes			rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
1180	32,5 - 34,5	1210							

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 BOS 5,4e(5,4f)

Edition 10.64

En

PE 6 A 65 B 312 LS 110 z RQ 200/1300 A 293 D

supersedes 2.61
company Büssing
engine U 5

Torque control: 0.65 mm shims must be added
to achieve 0.5 mm torque-control travel.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	5,7 - 6,2	0,2			
	6	1,4 - 2,1				
200	6	0,8 - 1,6				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ①				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
1250	14-14,8	1250	14,4	1320 1340 1360 1380 1430	14 - 14,4 8 - 14 1 - 11 0 - 8 0	430	0	100 150 200 280 330	6 - 8,1 5 - 7,2 3,4 - 6 0 - 3 0	800 1000 1150	15,8-16 15 - 15,4 14,4-14,7

Torque-control travel
on flyweight assembly dimension a =

0,5

mm

Speed regulation: At 1320

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a		Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3		rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1300	54,5 - 56,0	500		500 800	56,5 - 59,5 58,0 - 61,0		

Checking values in brackets

Testoil-ISO 4113

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 HEN 4,1d
(4,1e)

Edition 3.69

En

PE 4 A 80 B 412 RS 375
RS2024RQ 200/1300 A 300
A 419supersedes 10.68
company Henschel
engine 517 D 4 L

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

RS 2024=1,9 + 0,1

RS735

Port closing at prestroke

1,85 + 0,1

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ /100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1000	9	5,5 - 6,0	0,4			
	6	2,2 - 3,0				
	15	11,5 - 12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min	Control rod travel mm	Setting point rev/min	Control rod travel mm	Control rod travel mm	rev/min	Setting point rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
450	15,6-16,4	450	16	1300	15,6-16	420		100	5,5-7,4		
				1320	11 -15,2			150	4,4-6,4		
				1350	4,8-12			200	3 - 5		
				1380	0 -7,8			250	1 - 3,2		
				1440	0			320	0		

Torque control travel

on torque control assembly dimension a =

mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Fuel delivery on governor control lever ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes
1	2	3	4	5	6	7
1280	79,0 - 81,0	1280			100	mind. 13,4

Checking values in brackets

A12

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

912..

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 IHC 2,2 h

Edition 12.64

En

PES 4 A 60 B 420 LS 105 EP/RSV 250 - 1000 A 4/18
LS 105 Z
LS 105 y

supersedes 12.62
company I H C
engine DD 132
DD 132 S
DD 148

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	4,5 - 5,0	0,3			
	6	0,5 - 1,2				
	18	8,3 - 9,1				
200	6	0,3 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 58	1000	16	without auxiliary spring			ca. 22	250	5,5	750	0
	1050	8,4					100	19 - 21	400	0
	1080	3,5					250	5,2-5,8	300	1,2-1,8
							300	3 - 4,5		
2a	1050	6,2 - 10	with auxiliary spring				350	0 - 2,8		
	1100	1,2 - 3,2					450	0 - 1		
	1200	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min							
rev/min	cm ³ /1000 strokes			rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
750	30,0-32,0	1010							
750Z	42,5-44,5	1010							
750Y	34,5-36,5	1010							

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 STE 2,7a
Edition 1.68

En

PES 4 A 65 C 410 PS 1113

EP/RSV 250-1275 A1 B183 DL

EP/RSV 250-1200 A1 B255DL*

Special setting of governor see page 2!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes
company
engine

9.64
Daimler-Benz
WD406
(47,5PS)
WD 406a
(50 PS)

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	5,7 - 6,2	0,3			
	6	1,4 - 2,1				
	18	9,7 - 10,6				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

250-1275 A1 B183 DL

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 70	1275	12	without auxiliary spring			ca. 27	250	6	1180	0
	1300	9					100	19 - 21	1000	0,5 - 0,7
	1330	5,2					250	5,7-6,3	800	0,9 - 1,1
	1320	5 - 8,5	with auxiliary spring				350	3,7-4,8	500	1,2 - 1,4
	1350	2,8-4,3					450	0 - 3		
	1450	0 - 1					600	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min							
rev/min	cm ³ /1000 strokes			rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
1180	36,5-38,5	1210-1230		1000	38,0-41,0 39,0-42,5	100	13,4-14,1		

Checking values in brackets

* 1 mm less control rod travel than col 2

A16

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

A 16

B. Governor Settings

250 - 1200 A 1 B 255 DL

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
ca.66	1220	12,0	without auxiliary spring			ca.26	250	6,0	1200	0
	1240	9,5					100	19-21	800	1,0-1,2
	1260	7,0					250	5,7-6,3	500	1,5-1,7
	1250	7,8-9,0	with auxiliary spring				400	1,8-3,8	600	0 - 1
	1300	2,2-4,1								
⑤	1400	0 - 1								

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitation	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...) rev/min						
rev/min	cm ³ /1000 strokes		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	
1200	41,7 - 43,7	1220-1235	1000 500	42,7-45,7 47,0-50,0	100	13,5-14,1		
			⑥a					

Checking values in brackets

*1 mm less control rod travel than col. 2

As opposed to WPP 001/4 - 1st Supplement - the special setting for the governor B 183 DL is as follows:

- Adjust governor spring (corresponds to (1))
- Pre-adjust full-load delivery and note down control-rod travel (roughly corresponds to (2))
- Screw in torque-control retainer until control-rod travel is 1 mm more than measured under 2. (roughly corresponds to (3))
- Final adjustment of full-load delivery by screwing back full-load stop screw (roughly corresponds to (2))
- Adjustment of breakaway (corresponds to (6)) (3)
- Test torque-control and fuel-delivery characteristics (roughly corresponds to (3a))
- Idle adjustment (corresponds to (4))
- Check starting fuel delivery/adjust with control-rod stop (corresponds to (6a))

As regards the information given in parentheses, please consult the test instructions.

Test Specifications Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4 HAN 2,8 b 1
Edition 4.64

En

PE 4 A 60 C 310 LS 1088 EP/RSV 250-1150 A 1 B 157 DL

B 158 DL
EP/RSV 250-1100 A 1 B 172 DL
B 179 DL

supersedes
company Hanomag
engine D 28 CR
D 28 CK

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	4,5 - 5,0	0,3			
	6	0,5 - 1,2				
	18	8,3 - 9,1				
200	6	0,3 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV 250-1150

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1150 1180 1210	12 9 6,2	without auxiliary spring			ca. 31	250	7,5	1130	0
	1180 1220 1300 1350	8,5-10 5 - 6,5 0 - 3 0 - 1					100 250 400 500 650	19 - 21 7,2-7,8 4 - 6 0 - 4 0 - 1	1000 800 350	0,7-0,9 1,4-1,6 1,4-1,6
2a			with auxiliary spring							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to)							
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
1130	40,7-42,7	1160-1180		800 500	46,7-49,7 46,0-49,0				
									./.

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

A18

A 18

B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.65	1100	12	without auxiliary spring			ca.31	250	7,5	1080	0
	1130	9,5					100	19-21	1000	0,4-0,6
	1160	6,7					250	7 -7,8	800	1,2-1,4
							400	4 -5,6	350	1,2-1,4
⑤	1110	11 -11,8	with auxiliary spring				550	0 - 3		
	1160	5,6-7,6					700	0 - 1		
	1220	2 -4,2								
	1320	0,3-1								

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitation	③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)						
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	
1080	40,2-42,2	1110-1130	700	45,2-48,2				
			400	43,5-46,5				
The value measured at n 700 must be 4 - 5 cm ³ /1000 strokes higher than that measured at n 1080.								

Checking values in brackets

*1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure CompensatorTest at n = rev/min decreasing pressure - in bar gauge pressure (g p.)
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	(g p) bar	(g p) bar	mm (1)

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

40

VDT-WPP 001/4 BOS 5,4 i
Edition 9.64

En

PE 6 A 65 C 312 LS 1009 EP/RSV 250-1350 A5B 409 D
184 D

supersedes
company
engine
Büssing
U 5 (125 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	5,7 - 6,2	0,3			
200	6	1,4 - 2,1				
	6	0,8 - 1,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 59	1350	16	without auxiliary spring			ca. 19	250	6	1300	0
	1400	11,8							1200	0,4-0,6
	1450	6,8	with auxiliary spring				150	19 - 21	1000	0,9-1,1
	1450	4,8-8,4					250	5,7 - 6,3	400	0,9-1,1
	1530	1,1-3,5					350	4,4 - 5,2		
	1650	0,3-1,0					500	0,5 - 3,4		
2a							650	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1350	57,0-59,0	1370		1100 500	61,0-64,0 60,5-63,5		To be specified by customer		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 HAN 2,1 k
Edition 3.67

En

PE 3 A 60 C 410 LS 1135

EP/RSV 250-1200 A2 B209DL
B241DL

supersedes 9.64
company Hanomag
engine D 21 CR

EP/RSV 250-1300 A2 B214DL ./.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
1000	12	4,5 - 5,0	0,4			
	6	0,5 - 1,2				
	18	8,3 - 9,1				
200	6	0,3 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

250-1200

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 51	1200	16,0	without auxiliary spring			ca. 22	250	6	1090	0
	1280	10,7					150	19 - 21	1000	0,3
	1350	5,1					250	5,7-6,3	800	1,0-1,1
②a	1300	7,5-10,2	with auxiliary spring				450	3,5-4,7		
	1325	4,8- 8,6					600	0,5-3,4		
	1400	2,7- 4,4					800	0 - 1	500	1,2-1,3
	1570	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤ Idle stop	
Test oil temp 40°C (104°F)		Note changed to)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1180	42,5-44,5	1220		800 500	47,2-50,2 47,0-50,0				
									./.

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany,
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

B. Governor Settings

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
ca. 54	1300	12,0	without auxiliary spring			ca. 23	250	6,0	1280	0
	1350	8,5							1100	0,2-0,4
	1390	5,6							900	0,8-1,0
	1340	8,6-9,7							450	2,3-4,2
	1400	4,2-6,0							700	0 - 1
⑤	1450	2,2-4,0	with auxiliary spring						400	1,0-1,2
	1600	0,3-1,0								

C. Settings for Fuel Injection Pump with Fitted Governor

<div>2</div> Full-load stop		<div>6</div> Rotational-speed limitation		<div>3a</div> Fuel delivery characteristics		Starting fuel delivery idle		<div>5a</div> Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	
1280	42,7 - 44,7	1320		900 500	45,2-48,2 45,0-48,0				
				<div>6a</div>					

Checking values in brackets

*1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing
 increasing pressure – in bar gauge pressure (g p.)

Pump/governor	Setting (g p) bar	Measurement (g p) bar	Control rod travel- diminution difference mm (1)

Notes:

(1) when $n =$

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

En

Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 KHD 16,0 e

2. Edition

En

PE 12 A 75 C 520 RS 1100 RQ 200/1150 AA 477 D
AA 520 D

supersedes 2.69
KHD
company F 12 L 614(250PS)
engine F 12 L 714(290PS)
F 12 L 714(270PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,7 - 5,1	0,4			
	6	1,9 - 2,6				
	15	10,4 - 11,5				
200	6	0,9 - 1,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 200/1150 AA 477 D

Checking of slider PRG check rev/min 1		Setting point rev/min 3		Test specifications rev/min 6		Setting point rev/min 7		Test specifications rev/min 10		Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Control rod travel mm 5		Control rod travel mm 8		Control rod travel mm 9		Control rod travel mm 12	
1130	13,5-14,1	1130	13,4	1150	13,2-13,4	440	0	100	6 - 8	300	16 - 21
				1160	11 - 13,4			200	3,2-5,8	400	15,8-16,2
				1200	0 - 9			300	0 - 2	600	15,3-15,6
				1250	0			340	0	1000	13,9-14,2

Torque-control travel
on flyweight assembly dimension a = 0,8 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /~1000 strokes 2				cm ³ /~1000 strokes 5		cm ³ /1000 strokes/mm 7	
1130	69,0 - 71,0	600		1000	72,0 - 75,0		614 - 250 PS
				600	76,0 - 79,0		

Checking values in brackets

4.73a

Testoil-ISO 4113

A23

423

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

B Governor Settings

Checking of slider PRG check ①		Full load speed regulation Setting point				Id.e speed regulation Setting point				Torque control Control rod ③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1100	13,5-14,3	1000	13,9	1150 1180 1200 1250	13,7-13,9 4,5-12,0 0 - 9 0	430	0	100 200 300 330	# 6,0-8,1 3,5-6,0 0 -1,8 0	400 800 1000	15,8-16,2 14,7-15,0 13,9-14,2

Torque-control travel
on flyweight assembly dimension a

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ 1000 strokes / mm 7
1130	88,5 - 90,5	600	900	91,7 - 94,7		714 - 290 PS
			600	94,0 - 97,0		
1130	80,0 - 82,0	600	1000	80,5 - 83,5		714 - 270 PS
			600	82,5 - 85,5		

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at $n =$ rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure bar	Gauge pressure = bar	mm (1)

Notes

(1) when $n =$

En

rev/min and
gauge pressure

bar (- maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 HAN 3,3 c

Edition 11.65

En

PE 4 A 70 C 412 RS 1090 RQ 250/1425 AB 572 DL
RS 1090Y RQ 300/1425 AB 572 DL

supersedes

company: Hanomag

engine: D 351

D 351 ML

D 351 MLA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,9+0,1
2,5+0,1

mm (from BDC)

...S 1090

...S 1090 Y

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,5 - 7,0	0,4			
	6	1,2 - 2,3				
	18	10,9 - 11,9				
200	6	0,5 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 250/1425 AB 572 DL

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		rev/min 9		Control rod travel mm 12	
550	15,6-16,4	550	16	1425	14,4-14,5	500	0	100	6,3-8,1	1000	15,8-16,0
				1450	8,0-13,9			200	4,9-7,0	1100	15,2-15,6
				1500	0 - 7,3			300	2,2-4,4	1200	14,6-15,0
				1550	0			400	0	1300	14,5

Torque-control travel
on flyweight assembly dimension a =

0,45

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /-1000 strokes 2				cm ³ /-1000 strokes 5		cm ³ /1000 strokes/mm 7	
1400	51,0 - 53,0	500		1000	55,0-58,0	100	mind. 16 mm RW
				500	51,0-54,0		
PE ... S 1090 + RQ 250/1425 AB 572 DL + RQ 300/1425 AB 572 DL							
./.							

Checking values in brackets

Testoil-ISO 4113

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

B. Governor Settings

RQ 300/1425 AB 572 DL

HAN 3,3 c

-2-

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
550	15,6-16,4	550	16	1425 1450 1480 1540	14,0-14,4 8,0-13,0 0 - 9,2 0	500	0	250 300 350 400	6,5-8,1 4,2-6,8 1,2-4,0 0	1000 1150 1250	15,8-16,0 15,1-15,4 14,4-14,8

Torque-control travel on flyweight assembly dimension a =

0,5

mm

0,05

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
1400	55,0 - 57,0	500		1000 700 500	56,5 - 59,5 57,0 - 60,0 51,5 - 55,5	100	mind.16 mm RW

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel on flyweight assembly dimension a

mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
1400	60,0 - 62,0	500		1000 500	64,0 - 67,0 58,0 - 61,5	100	mind.16 mm RW
pump ...S 1090 Y RQ 300/1425 AB 572 DL							

Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 HEN 6,10

Edition 2.67

En

PE 6 A 75 C 412 RS 1069 RQ 200/1300 AB 576 DL
RS 1069 RQ 200/1300 AB 616 DL*
RS 1069 Z RQ 200/1300 AB 616 DL**

supersedes 10.65
company: Henschel
engine: 6 R1013 FVT(132PS
* 6 R1013 JVT(120PS
** 6 R1013 GVT(110PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,4 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,7 - 5,1	0,4			
	6	1,9 - 2,6				
	15	10,5 - 11,5				
200	6	0,9 - 1,8				

Adjust the fuel delivery from each outlet according to the values in

..AB 576 DL

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9 rev/min 10		Torque control rev/min 11	
	Control rod travel mm 2		Control rod travel mm 4				Control rod travel mm 8		Control rod travel mm 10		Control rod travel mm 12
450	15,7-16,3	450	16	1310	13,9-14,1	420	0	100	6,2-8,1	900	15,8-16,0
				1340	5,0-10,8			200	3,5-6,0	1000	15,4-15,7
				1360	0 - 9,2			300	0 - 1,2	1200	14,4-14,8
				1420	0			320	0		

Torque-control travel on flyweight assembly dimension a = 1310 mm Speed regulation: At 0,65mm±0,05 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7
1300	62,0-65,0	600		900	65,0-68,5		
				700	64,0-67,0		
							./.

Checking values in brackets

Testoil-ISO 4113

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

B. Governor Settings

..AB 616 DL* **

HEN 6,1 o

-2-

2

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1250	14,6-15,2	1250	14,9	1320	14,6-14,9	430	0	100	6,8-8,1	600	15,8-16,0
				1350	5,0-13,0			200	4,4-6,6	800	15,4-15,7
				1370	0 - 9,5			300	0 - 2,2	1000	14,9-15,1
				1420	0			330	0		

Torque-control travel on flyweight assembly dimension a

0,35 mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
1300	52,5 - 54,5	600		900	50,5 - 53,5	100	mind. 13 mm RW
				700	51,5 - 54,5		

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel on flyweight assembly dimension a

mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
1300	48,0 - 50,0	600		900	46,5 - 49,5	100	mind. 13 mm RW
				700	47,0 - 50,0		

En Checking values in brackets

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 DAI 5,7a(5,7b)

Edition 5.64

En

PES 6 A 80 C 410 RS 2085 RQV 300-1425 AA 517 D*

supersedes

company

Daimler Benz

engine

OM 352

- * When carrying out repairs, convert governor A 517 D to A 538 D and adjust in accordance with test-specification sheet DAI 5.7 d Refer to VDT-BMP 211/155 for automatic control-rod stop

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0				
	6	2,2 - 3,0				
	15	11,5 - 12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1425	15 - 17,8				ca. 10	100	6,7-7,8	1425	0
	1450	13,5-16,6					200	6,0-7,4	1200	0,3-0,5
	1500	10,6-14,5					400	3,5-5,2	900	0,6-0,8
	1600	4,0-10,0					600	1,4-2,8	600	0,8-1,0
	1700	0 - 5,0					770	0		
	1780	0				3a				

Torque control travel a = 0,9 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1400	57,5-59,5	1425 1450: RW 0,5-1,0mm less	1000 700 500	55,0-58,0 56,0-59,0 51,0-54,0	100	7,9-9,9		./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

BOSCH

Geschäftsbereich KM Kundendienst Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50. Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 MAN 5,9 f

Edition 2.64

En

PE 6 A 65 C 412 RS 1059 RQV 250-1275 AA 513 D
* RQV 250-1350 AA 513 D

supersedes
company MAN
engine D 0026M1
M2*

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,8 - 4,2				
	6	1,1 - 1,8				
	12	5,8 - 6,5				
200	6	0,5 - 1,3				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQV 250 - 1275

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca .66	1275	15 - 18				ca .10	200	6 - 8	1275	0
	1300	12,6-16,2					300	3,6-5,3	1100	0,2-0,4
	1350	7,8-12,8					450	2,9-3,8	900	0,4-0,6
	1400	2,2- 9,2					570	2,1-3,8	500	0,7-0,9
	1450	0 - 5,2					700	0,9-2,2		
	1520	0				3a	850	0		

Torque control travel a = 0,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
800	56 - 58	1280 - 1300	1250	51,5-53,5				./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

B6

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

B. Governor Settings

RQV 250-1350

MAN 5,9 f

-2-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca .66	1350	15 - 18				ca .10	200	6 - 8	1350	0
	1400	10,6-14,6					300	3,7-5,2	1100	0,4-0,6
	1450	6 - 11,4					450	3 - 3,8	800	0,6-0,8
	1500	1 - 8					600	2 - 3,7	500	0,7-0,9
	1550	0 - 4,4					750	1,1- 2,6		
	1620	0				(3a)	900	0		

Torque control travel a = 0,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
900	56,5 - 57,5	1360-1380	1350	52,0-55,0					

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
						(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	

Checking values in brackets

* 1 mm less control rod travel than col 2

En

Test Specifications Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4 KHD 5,1 b
Edition 10.68

En

PE 6 A 70 B 410 RS 1019 EP/RSV 300-1100 A 1 A 386
Cyl. 1...3 provided with dummy seal; start-of-delivery mark,
cylinder 4
supersedes 3.64
company KHD
engine F 6 L 712

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,5 - 7,0	0,4			
	6	1,2 - 1,9				
	18	10,9 - 11,9				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel	Control rod travel				Control lever deflection in degrees	rev/min	Control rod travel	rev/min	Control rod travel
1	mm	mm rev/min	4	5	6	7	8	9	10	11
ca. 60	1100	16	without auxiliary spring			ca. 26	300	6	1080	0
	1150	11					100	19 - 21	450	0
	1200	4					300	5,7-6,3		
2a	1170	6 - 10	with auxiliary spring				400	0,5- 3	330	1 - 2
	1200	3 - 6					500	0 - 1		
	1250	0 - 2,5								
	1300	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40°C (104°F)		Note changed to)							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1080	37,5-39,5	1110 - 1130					300		6

Checking values in brackets

* 1 mm less control rod travel than col. 2

B8

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH Postfach 50 D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 KRU 10,2a

Edition 2.70

En

PE 8 A 85 C 420 RS 2068 RQ 400/1850 AB 563 DR
2068z ./.

supersedes 11.65
company: Krupp
engine: D 710

Set all cylinders to tappet clearance $0.3 + 0.05$ mm at TDC;
mark port opening at cylinder 1 (drive end).

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,8 - 4,3				
	6	0,5 - 1,2				
	12	6,4 - 7,4				
200	9	1,1 - 1,9				
	21	10,6 - 12,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque-control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
1800	12,4-13,2	1800	12,8	1850 1860 1940 2020	12,6-12,8 10 - 12,8 0 - 7 0	800		200 400 600 700	7,6 - 8 4,7 - 7,4 0 - 2,6 0	800 1000 1200 1600	15,6-16,1 15,1-15,4 14,5-14,8 13,1-13,4

Torque-control travel on flyweight assembly dimension a = $0,95 \pm 0,05$ mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1800	97,0 - 100,0	1200	1200	111,5-115,5	100	21 mm RW
						./.

Checking values in brackets

B10

310

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /- 1000 strokes	rev/min		rev/min	cm ³ /- 1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
1850	83,5 - 86,5	1200		1200	88,5 - 92,5		
				1400	87,5 - 91,5		
				1600	85,5 - 88,5		

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /- 1000 strokes	rev/min		rev/min	cm ³ /- 1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7

En Checking values in brackets

Test Specifications Fuel Injection Pumps ①A and Governors

40

VDT-WPP 001/4 KHD 5,3 z
Edition 2.69

En

PE 4/6A 75B 420 LS 153 Z EP/RSV 200-..A7 A56D
PE 4/6A 75C 420 LS 1036 EP/RSV 300-1000 A7A430D
PE 6 A .. S 1035, Z, S1052 EP/RSV 300-1150A4B56D,469D
PE 8 A 75 B 320 RS 100 EP/RSV 300-1150A..B 374

Further closed-loop control values and full-load deliveries, in particular reduced engine speeds and deliveries, are listed in KHD 1 a!

supersedes 5,3z(3.65)5,3y2
(3.65)
company KHD
engine 4
F 6 L 514
8 614
714

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,2 - 6,6	0,3			
	9	3,0 - 3,7				
	15	8,5 - 9,5				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

200-900, 200-825 A 7 A 56 D

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 62	900	16	without auxiliary spring			ca. 25	200	6	880	0
	940	11,5					100	19 - 21	700	0,3-0,5
	980	5,5	with auxiliary spring				200	5,7-6,3	550	1,0-1,2
	950	9 - 11,5					300	3 - 4	300	1,2-1,4
	1000	2,6- 4,8					400	0 - 3,3		
	1050	0 - 2,2					550	0 - 1		
②a	1100	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp 40°C (104°F)		Note changed to)				Idle			
rev/min	cm ³ /100 strokes	rev/min		rev/min	cm ³ /100 strokes	rev/min	cm ³ /100 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
800	63 - 65	Upper rated speed + 20U/min	500	73 - 76				300	6
			400	72 - 75				→	B430DR, B469DR
			500	80 - 83					
			400	79 - 82					
1130	72,0-74,0	Upper rated speed + 20 U/min						300	6
1130	79,0-81,0								

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B12

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Torque-control travel rev/min	mm
1	2	3	4	5	6	7	8	9	10	11

300-1000 A 7 A 56 D, --430D

ca.72	1000	16	*			ca.28	300	6	980	0
	1040	10,6					100	19 - 21	700	0,5-0,7
	1070	5,5					300	5,7-6,3	400	1,2-1,4
	1050	6,8-10,2	**				400	3,0-4,4		
	1080	3,3- 6,0					600	0 - 1		
	1200	0 - 1								

300-1150 A4 B56D, 469 D

ca.73	1150	16,0	*			ca.28	300	6,0	1130	0
	1180	11,8					100	19,0-21,0	700	0,5-0,7
	1220	6,0					300	5,7-6,3	400	1,2-1,4
	1200	7,5-10,5	**				450	1,0-3,5		
	1260	1,5- 3,8					600	0 - 1		
	1350	0 - 1								

300-1150 A1 B374 ***

ca.66	1150	16,0	*			ca.28	300	6,0	1130	0
	1200	11,4					100	19 - 21	450	0
	1250	5,8					300	5,7-6,3	330	1,2-1,8
	1230	6,0-9,3	**				350	3,5-4,7		
	1280	1,8-4,0					400	0,6-3,0		
	1400	0,3-1,0					500	0 -1,0		

300-1150 A4 B374 *** Full-load delivery see page 1!

ca.73	1150	16	* without auxiliary spring			ca.28	300	6	1130	0
	1180	12					100	19 - 21	500	0
	1220	5,8					300	5,7-6,3	350	1,2-1,8
	1200	7 - 10	**with auxiliary spring				360	2,8-4,2		
	1250	1,5- 3					480	0 - 1		
	1350	0 - 1								

--	--	--	--	--	--	--	--	--	--	--

Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 KHD 7,4a(7,4b)
Edition 11.68

En

PE 6 A 75 B 320 RS 154
S 1035
S 1118

RQ 250/1250 A 284
A 312 D

supersedes 5.64
company: KHD
engine: F 6 L 613
(120 PS)
(110 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,2 - 6,6	0,3			
	9	3,0 - 3,7				
	15	8,5 - 9,5				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ④				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
450	15,7-16,3	450	16	1250	15,5-16			200	6 - 8,1		
				1260	14 - 16			250	3,5-6		
				1280	7,5-14			300	0 - 2,5		
				1310	0 - 9			340	0		
				1370	0						

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1230	65,6 - 67,5	1230			100	mind. 9,9
1230	59,0 - 61,0					

Checking values in brackets

B14

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

①

Test Specifications Fuel Injection Pumps ① and Governors

40
VDT-WPP 001/4 KHD 5,3 t
(5,3 u)
Edition 3.64

En

PE 4 A 75 B 420 LS 188 RQV 250-825 A 153 D

supersedes 8.59
company: K H D
engine: F 4 L 514

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,9 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	3,2 - 3,7	0,3			
	6	0,9 - 1,7				
	15	8,5 - 9,5				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
65±1,5	825	15 - 18				10±1,5	150	7 - 8	825	0
	840	12 - 15,4					250	4,3-6,6	800	0,1-0,2
	880	6 - 11					400	1,8-3,3	700	0,4-0,6
	920	0 - 6,3					530	0	650	0,5-0,7
	980	0								

Torque control travel a = 0,6 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
825	76,0-78,0	830-850	600 400	78,5-81,5 76,5-79,5	100	mind. 11,9		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B15

BOSCH

Geschäftsbereich KH, Kundendienst, Kfz-Ausrüstung.
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

3A5

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 MAN 9,7 1 1

1. Edition

40

En

PES 6 A 95 C 410 RS 2108 RQV 200-1100 AB752L (1)
 RS 2108Z RQV 200-1100 AB752L (2)
 RS 2108 RQV 200-1100 AB754L (3)
 RS 2108 RQV 200-1100 AB817DL (4)

supersedes

company: MAN

engine: D 2156 HM3/HMN1 (1)
 D 2146 HM3/HMN1 (2)
 D 2356 HM2/HMN2 (3)
 D 2156 MY.. (4)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7+0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	8,4 - 9,4	0,4			
	6	4,0 - 5,0				
	15	16,0 - 17,8				
200	9	5,9 - 6,9				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

RQV..752 L (1,2)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1145	14,8-18,3	-	-	-	ca. 12	150	6,2-8,0	1145	8,2
	1380	0					250	3,8-5,8		
ca. 66	1100	15,0-18,0					350	1,1-3,1		
	1180	8,0-13,0					500	0 -1,6		
	1260	0 - 7,6					640	0		
	1360	0				3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	115,0-117,0	1120	500	max. 109,0				
1100	109,0-111,0		500	max. 103,0	200	6 mm RW	600	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B16

B16

BOSCH

Geschäftsbereich KM, Kundendienst, Kfz-Ausrüstung.
 © by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50. Printed in the Federal Republic of Germany.
 Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

11.73

B. Governor Settings

RQV..754L (3) VDT-WPP 001/4 MAN 9,7 1 1 -2-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	145	4,8-18,3	-	-	-	ca. 12	150	6,2-8,0	1145	8,2
	380	0					250	3,8-5,8		
ca. 66	100	5,0-18,0					350	1,1-3,1		
	180	8,0-13,0					500	0 -1,6		
	260	0 - 7,6					640	0		
	360	0								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	123,5-125,5	$\frac{1120}{600}$	500	max. 119,5	200	6 mm RW	600	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

RQV .. 817 L (4)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1145	14,8-18,3	-	-	-	ca. 12	150	6,2-8,0	1145	8,2
	1380	0					250	3,8-5,8		
ca. 66	1100	15,0-18,0					350	1,1-3,1		
	1180	8,0-13,0					500	0 -1,6		
	1260	0 - 7,6					640	0		
	1360	0								

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1100	98,5-100,5	$\frac{1120}{600}$	700	99,5-102,5	200	6 mm RW	1100	0
			500	max. 98,0			600	0,3-0,4

Checking values in brackets

* 1 mm less control rod travel than col. 2

En

0.17

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 MAN 11,6 k

Edition 2.64

En

PE 8 A 85 B 412 LS 272
C 412 LS 2062
MAN-Nr. 282 - 284

EP/RSV 250 - 900 A7A 354
750 A7A 354

supersedes 3.8.61
company MAN
engine D 1548 MT

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 5,1 ± 0,05 mm mm (from BDC) RW 9

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,3 - 4,8	0,4			
	6	1,3 - 2,1				
	12	7,6 - 8,0				
200	9	3,1 - 3,8				
	21	13,1 - 14,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 54	900	16	without auxiliary spring			ca. 21	250	6	880	0
	930	10,8					100	19 - 21	450	0
	950	6					250	5,7-6,3	300	1,2-1,8
	930	9 - 12	with auxiliary spring				300	3,5-4,8		
	950	3,6-8					350	0,5- 3		
	980	1,2-3					450	0 - 1		
2a	1050	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min							
rev/min	cm ³ /1000 strokes			rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
NR. 282	730	86,5-88,5	760 - 770					n 250	RW 6
NR. 283	880	91,5-93,5	910 - 920						
NR. 284	980	94,5-97,5	1010 - 1030						

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

②

Test Specifications

Fuel Injection Pumps ②

and Governors

40

VDT-WPP 001/4 MAN 8,3 f(8,3f1
Edition 2.64

En

PE 6 A 70 B 412 RS 159 RQ 200/1000 A 128 D
MAN-Nr. 50 / 51

Note: Perform basic adjustment before setting start of delivery.

supersedes 3.58

company: MAN

engine: D 1246 M

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,3 \pm 0,05$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,6 - 4,8				
	6	2,0 - 2,6				
	12	6,9 - 7,5				
200	6	1,1 - 1,7				
Port closing difference between control-rod travel 12 mm and 21 = 2.5-3° camshaft.						

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications Control rod travel mm 9	rev/min 10	rev/min 11	Control rod travel mm 12
550	15,6-16,4	550	16	1000 1020 1060 1100 1140	14,5-14,7 10,4-14,6 3 -10,2 0 - 5,2 0	510	0	50 100 200 350 410	7 - 8 5,5-7,5 4,1-6,1 0 -2,5 0	400 600 800	16 - 16,3 15,8-16 15,2-15,6

Torque-control travel on flyweight assembly dimension a = 0,4 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm 7
Nr. 50						
950	77,0 - 79,0	700	700	80,5 - 83,5	100	mind. 14,9 = 21 mm RW
Mr. 51						
80,0 - 82,0		700	450	77,5 - 80,5		
			700	84,0 - 86,0		
			450	80,5 - 83,5		

Checking values in brackets

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 KAE 5,4 a

Edition 12.66

En

PES 4 A 85 B 410 RS 332
PES 4 A 85 C 410 RS 2002
PES 4 A 85 C 410 RS 2011
PES 4 A 90 C 410 RS 2011

EP/RSV 250-1100 A1 A71D
EP/RSV 250-1100 A1 A71D
EP/RSV 250-1100 A1 B154D,117D
EP/RSV 250-1100 A1 B458DL ./.

supersedes 1.65
company Kaelble
engine M 215 v -SL
M 215 VT-SL ./.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

8,5 Ø

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	6,5 - 7,0	0,4			
	6	2,3 - 3,1				
200	15	14,0 - 14,8				
	6	1,3 - 2,2				
	6	2,9 - 3,7	**		** 9 Ø	
1000	9	7,4 - 7,9	0,4			

Adjust the fuel delivery from each outlet according to the values in

15 16,0 - 17,3
200 6 1,1 - 2,0

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 64	1100	16,0	without auxiliary spring			ca. 27	250	6,0	950	0
	1150	12,0					100	19 - 21	800	0,3-0,5
	1200	6,5					250	5,7-6,3	600	0,7-0,9
2a	1190	5,4-9,2	with auxiliary spring				350	3,6-4,7	350	0,7-0,9
	1250	1,5-4,2					450	0 - 3,0		
	1350	0,3-1,0					550	0 - 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min							
rev/min	cm ³ /1000 strokes	3	rev/min	cm ³ /1000 strokes	5	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2		4			6	7	8	9
1080	81,5-84,5	1120	700	83,5-86,5					
									./.

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

C3

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany,
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

C3

The numbers denote the sequence of the tests

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control		
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11	
ca.64	1100	16,0	without auxiliary spring			ca.27	250	6,0	1080	0	
	1150	12,0					100	19 - 21	800	0,3-0,5	
	1200	6,5					250	5,7-6,3	650	0,6-0,8	
	②a	1170	8,0-11,2	with auxiliary spring			400	2,0-4,0	350	0,7-0,9	
		1200	4,6- 8,2				600	0 - 1			
1250		1,5- 4,2									
	1350	0 - 1									

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min 1	cm³/1000 strokes 2	rev/min 3		rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
1080	81 - 84	1120		700	84 - 87				
1080	101 -104			700	104 -107				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min 1	cm³/1000 strokes 2	rev/min 3		rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9

Checking values in brackets

* 1 mm less control rod travel than col. 2

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 KRU 5,8 f

Edition 2.64

En

PE 4 A 85 B 320 LS 548 RQ 400/1950 A 393 D
LS 2015

supersedes 20.4.61
company: Krupp
engine: D 459

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,8 - 0,1 mm (from BDC) RW 9

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	8,9 - 9,5	0,4			
	9	4,4 - 5,2				
	6	2,2 - 3,1				
200	9	2,6 - 3,4				
	21	11,9 - 16,9				

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		Torque control rev/min 11	
1900	14,6-15,2	1900	14,9	1950	14,6-14,9			300	6,4-8,1	1100	15,7-16
				2000	5 - 12,5			400	4,6-6,8	1300	15,3-15,6
				2050	0 - 7			500	2 - 4,6	1500	14,9-15,2
				2120	0			550	0 - 3		
								640	0		

Torque-control travel
on flyweight assembly dimension a = 0,35 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
1900	97,0 - 99,0	1200		1200 1600	99,0 - 102,0 99,5 - 102,5	100	21 mm RW

Checking values in brackets

C5

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

C5

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 BOS 10,9 g

Edition 3.69

En

PE 6 A 90 B 312 LS 314 RQ 200/1000 A 363 D (1)
 PE 6 A 90 C 312 LS 2044,Z RQ 200/1000 AA 363 D (1,2,)
 PE 6 A 90 C 312 LS 2044,Z RQ 250/1000 AA 363 D (1,2,)
 PE 6 A 90 C 312 LS 2044 RQ 200/1050 AA 363 D (3)

supersedes 12.66
 company: Büssing
 engine: U 11/200 (1)
 170 (2)
 210 (3)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	10,3 - 10,7	0,4			
200	9	6,0 - 6,5				
	9	3,9 - 4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

200/1000

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
PRG check		Setting point	Test specifications			Setting point	Test specifications			Control rod travel	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
980	14,6-15,4	980	15,0	1020	14,8-15,0	420	0	100	6,2-8,1	400	15,8-16,2
Breakaway not before n = 1020				1040	8,8-14,2			150	5,2-7,4	600	15,5-15,8
				1060	1,2-10,6			200	3,8-6,0	800	15,1-15,4
				1080	0 - 7			300	0 -1,6		
				1120	0			320	0		

Torque-control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	Control rod travel
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes/mm
1	2	3	4	5	6	7
1000	118,5-120,5	500	500	116,5-120,5	100	mind.18,5mmRW
			700	115,5-119,5	Adjustment (1)	
			900	119,0-123,0		
./.						

Checking values in brackets

Testoil-ISO 4113

C6

C6

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung.
 © 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany
 Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

B. Governor Settings

250/1000

BOS 10,9 g

-2-

②

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
950	14,6-15,4	950	15,0	1020	14,8-15,0	490	0	100	5,8-7,6	500	15,7-16,0
	Breakaway not before 1020			1060	6,0-12,5			250	3,0-5,2	700	15,3-15,6
				1080	0,5- 9,5			350	0 - 2	900	15,0-15,2
				1150	0			390	0		

Torque-control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
1000	105,5 - 108,5			900	105,5 - 109,5	Adjustment (2)	
				700	103,5 - 107,5		
				500	105,5 - 109,5		

Checking values in brackets

B. Governor Settings

250/1050

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1000	14,6-15,4	1000	15,0	1070	14,8-15,0	500	0	100	6,2-8,1	500	15,7-16,0
	Breakaway not before 1070			1100	9,2-13,5			150	5,6-7,6	700	15,4-15,7
				1140	0 - 8,5			250	3,7-5,7	900	15,0-15,2
				1200	0			350	0 -2,6		
								400	0		

Torque-control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
1050	120,0-123,0	500				100	mind.18,5 mmRW Adjustment (3)

En Checking values in brackets

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 SCL 3,3 a
Edition 12.70

En

PES 3 A 85C 410 RS 2280 (1)
RS 2280Z (2)

EP/RSV 250-1000A1B 563DL
supersedes
company
engine

Schlüter
SDM 106 W3(1-45PS)
SDM 110 W3(2-55PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5+0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,9 - 5,5	0,4			
	6	1,3 - 2,1				
	15	12,1 - 13,2				
200	6	0,1 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 50	1000	12,0	without auxiliary spring			ca. 20	250	5,5		
	1020	9,4					150	19 - 21	980	0
	1050	5,0					250	5,2-5,8	800	0,5-0,7
②a	1020	8,5-10,2	with auxiliary spring				350	2,9-4,2	400	0,5-0,7
	1050	4,3- 6,4					540	0 - 1		
	1150	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min									
rev/min	cm³/1000 strokes			rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min		Control rod travel mm	
1	2	3		4	5	6	7	8		9	
1000	61,0-63,0	1020		700 500	58,5-61,5 52,5-55,5	100	ca. 20	250		5,5	

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en Republique Federale d'Allemagne par Robert Bosch GmbH

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel	Control rod travel				Control-lever deflection in degrees		Control rod travel		Control rod travel
1	2	3	4	5	6	7	8	9	10	11
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1000	73,0 - 75,0	1020	700 500	71,0 - 74,0 64,0 - 67,0	100	ca. 20	250	5,5	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
2a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	

Checking values in brackets

* 1 mm less control rod travel than col. 2

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 DAI 5,7 b

Edition 5.64

En

PE 6 A 80 B 410 RS 2085 RQV 300-1425 AA 536 DL
2194 AA 551 DL

supersedes

company:

Daimler-Benz

engine

OM 352 A
(150 PS)

Refer to VDT-BMP 211/15 for testing of
automatic control-rod stop.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15 \pm 0,1$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0	0,4			
	6	2,2 - 3,0				
	15	11,5 - 12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
66±1,5	1425	16 - 19,4				10±1,5	100	6,7-7,8	1400	0
	1450	14,5- 18,2					300	5,0-6,8	1000	0,1-0,3
	1550	8,2- 13,4					400	3,4-5,2	800	0,4-0,6
	1650	1,4- 8,0					450	3,0-4,2	500	0,4-0,6
	1800	0					500	2,5-3,7		
						3a	780	0		

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1400	66,0-68,0	1425 1450: 0,1-1,0 mmRW less	1000 800 500	60,5-63,5 61,5-65,5 56,5-60,0	100	13,2-13,8		1300 (A 536DL)

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

C10

C10

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
c by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 KAR 5,4 b
Edition 1.65

En

PES 4 A 85 C 410 RS 2011 EP/RSV 250-1100 A 1 B 168

supersedes 5.63
company Kaelble
engine M 215 V

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	6,5 - 7,0	0,4			
	6	2,3 - 3,1				
	15	14,0 - 14,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.64	1100	16	without auxiliary spring			ca.27	250	6	1080	0
	1150	12 - 12,2					100	19 - 21	400	0
	1200	6,7- 6,8					150	9,4- 21	300	1,2-1,8
	1160	9,7-11,7	with auxiliary spring				250	5,9-6,1		
	1200	4 - 8,2					350	1,1-3,5		
	1300	0,3- 1					450	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min							
rev/min 1	cm ³ /1000 strokes 2	3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1080	87,5-89,5	1110-1120							

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany,
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

C11

Cam

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 HEN 6,1 m
Edition 6.69

En

PE 6 A 80 C 412 RS 2005 RQ 200/1300 AA 521 D (V7121 D)
AA 522 D

supersedes 2.64
company: Henschel
engine: 522 TA
522 TAF

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,85 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0	0,4			
200	6 15 6	2,2 - 3,0 11,5 - 12,8 1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

AA 521 D (V7121D)

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9 rev/min 10		Torque control rev/min 11 Control rod travel mm 12	
450	15,6-16,4	450	16	1320 1340 1380 1420	13,7-13,9 7 - 13,2 0 - 6,2 0	440	0	100 200 300 340	6,8-8,1 4,3-6,5 0 - 2,2 0	600 800 1000 1250	16 15,4-15,8 14,7-15,1 14,9

Torque-control travel
on flyweight assembly dimension a = 0,65 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
1280	65,2 - 67,2	700	700 1000 1300	70,0-73,0 67,5-70,5 mind.65,2			

Checking values in brackets

Testoil-ISO 4113

C12

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

C12

B. Governor Settings

AA 522 D

HEN 6,1 m

-2-

②

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min	Control rod travel mm	Setting point	Control rod travel mm	Control rod travel mm	rev/min	Setting point	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1250	14 - 14,8	1250	14,4	1320	14 - 14,4	440	0	100	6,6-8,1	700	15,7-16
				1350	6 - 12,6			200	4,2-6,6	900	15,1-15,4
				1370	0 - 9,4			300	0 - 2	1100	14,4-14,6
				1430	0			340	0		

Torque-control travel
on flyweight assembly dimension a

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
1280	65,7 - 67,7	700	700	68,0 - 71,0		
			1000	65,0 - 68,0		
			1300	mind. 65,7		

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min	Control rod travel mm	Setting point	Control rod travel mm	Control rod travel mm	rev/min	Setting point	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel
on flyweight assembly dimension a

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7

En Checking values in brackets

C13

C13

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MAN 8,7 h

Edition 2.64

En

PE 6 A 80 C 421 LS 2058

RQ 150/1100 AA 455 D

supersedes 1.63

company: MAN

engine: D 1546 M 1 U

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,3			
	6	1,2 - 2,0				
	15	10,3 - 11,4				
200	9	2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		Torque control rev/min 11	
	Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		rev/min 9		Control rod travel mm 12
1050	14,1-14,7	1050	14,4	1100 1130 1160 1220	13,8-14,4 7,4-12,6 0 - 8,2 0	560		50 100 200 300 460	6 - 7,9 5,5- 7,6 3,6- 5,7 0 - 2,5 0	600 800 975	15,8-16 15,1-15,5 14,4-14,8

Torque-control travel
on flyweight assembly dimension a = 0,5 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm ³ /1000 strokes 2		Control rod travel mm 3a		cm ³ /1000 strokes 5		Control rod travel mm 6
1080	83,5 - 85,5	500		700 500	86,0 - 89,0 86,0 - 89,0	100	RW 21 mm

Checking values in brackets

C14

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH. Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

C14

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 DAI 1,8 1

Edition 2.64

En

PES 4 A 50 B 410 RS 144

EP/MZ 60 A 93 D

supersedes

1.8.59

company

Daimler-Benz

engine

OM 636

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	5	6	7
1000	12	2,2 - 2,7	0,2			
	9	0,8 - 1,4				
	18	4,5 - 5,2				
200	9	0,6 - 1,1				

Adjust the fuel delivery from each outlet according to the values in:

B. Governor Settings

Leakage			Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
Torque control travel	Vacuum pressure drop	Time at least	Vacuum	Control rod travel	Vacuum	Control rod travel	Vacuum	Control rod travel	Vacuum	Control rod travel
mm	mm water col	s	mm w.c	mm	mm w.c	mm	mm w.c	mm	mm w.c.	mm
1	2	3	4	5	6	7	8	9	10	11
0,6+0,1 500-480 10 430 13,0 control rod travel test (cols 4-11) = rotational speed 500 rev/min adjust breakaway (cols. 4-5) by means of shims* cam adjustment (B 8-9 - C 7-8) by means of shims**							470	13,0	200	13,5-13,7
							500	11 -12,6	250	13,4-13,7
							600	7,5- 9,4	320	13,1-13,4
							2000	4,9- 5,5		

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp 40°C (104°F)			Fuel delivery characteristics			idle (stop)** idle (imbalance)		Control rod travel from full-load to idle
rev/min	Vacuum mm wat. col	cm ³ /1000 strokes	rev/min	Vacuum mm wat. col	cm ³ /1000 strokes	rev/min	Vacuum mm wat. col	mm cm ³ /1000 strokes
1	2	3	4	5	6	7	8	8
1600	430	28,2-29,2	1200	270	28,2-30,2	0	0	6,0-6,3
			900	175	28,2-30,2			
			250	ca.580	6,2- 8,2			
				dispersion	max. 1,5			

Checking values in brackets

BOSCH

 Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
 © 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany
 Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 HAN 6,8 a
Edition 3.67

En

PE 4 A 90 C 420 RS 2122, Z EP/RSV 250-750 A4 B198DR
RS 2122 + 250-850 A4 B199DR
RS 2122 ++ 250-900 A4 B192DR

supersedes 7,64
company Hanomag
D 941R
engine +D 941K7 (70PS)
++D 941B8 (75PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,9 - 6,4	0,4			
	6	2,3 - 3,1				
	15	14,2 - 15,5				
200	9	3,8 - 4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV 250-750 A 4 B 198 DR

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 48	750	16,0	without auxiliary spring			ca. 25	250	6,0	730	0
	790	12,0					100	19 - 21	600	0,5-0,7
	830	6,8					250	5,7-6,3	500	0,6-0,8
②a	800	9,6-11,8	with auxiliary spring				350	3,4-4,6	350	0,6-0,8
	830	5,1- 8,4					450	0 - 2,7		
	900	1,1- 3,5					550	0 - 1		
	1000	0,3- 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤ Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min							
rev/min 1	cm ³ /1000 strokes 2	3	4	cm ³ /1000 strokes 5	6	cm ³ /1000 strokes 7	8	rev/min 9	Control rod travel mm 10
730	88,5-90,5	760	600	91,5 - 94,5					
			500	92,5 - 95,5					
730	102,0-105,0	760	600	102,5 - 106,5					
			500	105,5- 109,5					
./.									

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

B. Governor Settings

+ EP/RSV 250-850 A 4 B 199 DR

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 53	850	16,0	without auxiliary spring			ca. 26	250	7	830	0
	890	12,0					100	19 - 21	700	0,4-0,6
	940	6,0					250	6,7-7,3	500	1,1-1,3
	900	9,6-11,9					350	4,5-5,7	350	1,3-1,5
②a	930	5,4- 8,6	with auxiliary spring				450	0,4-3,9		
	1000	1,0- 3,8					600	0 - 1		
	1100	0,3- 1,0								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
830	79,5 - 81,5	860 - 870		700	84,5 - 87,5				
				500	88,5 - 91,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

**EP/RSV 250-900 A 4 B 192 DR

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 56	900	16,0	without auxiliary spring			ca. 25	250	6	880	0
	940	12,0					100	19 - 21	800	0,2-0,4
	980	7,0					250	5,7-6,3	700	0,4-0,6
	950	9,6-12,0					350	3,5-4,7	600	0,6-0,8
②a	980	5,0- 8,7	with auxiliary spring				450	0 -2,8	350	0,6-0,8
	1040	1,3- 3,7					550	0 - 1		
	1140	0,3- 1,0								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
880	86,0-88,0	910-920		750	85,5-88,5				
				600	86,0-89,0				
The value measured at n 600 must be - 2 cm³/1000 strokes higher than that measured at n 880.									

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications

Fuel Injection Pumps (1A)

and Governors

40

VDT-WPP 001/4 HAN 10,2 a

Edition 7.64

En

PE 6 A 90 C 320 RS 2123

EP/RSV 250-750 A 4 B 195 DR
+ (250-900 A 4 B 193 DR
+ (250-900 A 4 B 194 DR

supersedes

company Hanomag

engine D 691 K 10 E (100 PS)
(D 691 K 11 (105 PS)
+ (D 691 B 11 (105 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,15 + 0,1

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,8 - 6,4	0,4			
	6	2,3 - 3,1				
	15	14,3 - 15,5				
200	9	3,8 - 4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV 250 - 750 A 4 B 195 DR

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 48	750	16,0	without auxiliary spring			ca. 25	250	5,5	730	0
	790	12,0					100	19,0-21,0	600	0,5-0,7
	830	6,6					250	5,2- 5,8	500	0,8-1,0
2a	800	9,4-11,8	with auxiliary spring				350	2,8- 4,1	350	0,8-1,0
	850	3,4- 6,0					450	0 - 2,2		
	900	0,6- 3,0					550	0 - 1,0		
	1000	0,3- 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
rev/min 1	cm ³ /1000 strokes 2	3		4	5	6	7	8	9
730	77,75-79,75	760-770		600 400	80,0-83,0 84,0-87,0				./.

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany,
Imprime en Republique Federale d'Allemagne par Robert Bosch GmbH

B. Governor Settings

(EP/RSV 250-900 A 4 B 193DR
+ (EP/RSV 250-900 A 4 B 194DR

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 54	900	16,0	without auxiliary spring			ca. 23	250	5,5	810	0
	940	11,2					100	19 - 21	700	0,3-0,5
	980	5,2					250	5,2-5,8	600	0,6-0,8
2a	950	8,3-11,5	with auxiliary spring				350	2,8-4,1	500	0,7-0,9
	1000	2,6- 4,6					450	0 -2,1	350	0,7-0,9
	1050	0,3- 2,3					550	0 -1,0		
	1100	0,3- 1,0								

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
880	79,0-81,0	910 - 920		700	78,0-81,0				
				500	76,5-79,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
2a										

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MAN 11,1 a
2.Edition

En

PES 6 A 95 D 410 LS 2382 (1) RQ 250/1150 AB 839 DL
LS 2397 (1) RQV 250-1150 AB 847 DL
PES 6 A 95 D 410 LS 2382Z (2) AB 850 DL
LS 2397Z (2)

supersedes 7.73
company: MAN
engine: D 2556M/MH
(1-192PS)
..MU/H
D 2556M/MF
(2-200PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,6 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,4 - 8,0	0,4			
200	6	3,2 - 4,2				
	6	0,5 - 1,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ..839 DL

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Test specifications Control rod travel mm 4		Test specifications rev/min 6		Test specifications Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 12	
600	15,7-16,3	600	16,0	1170	15,0-15,4	540	0	150	6,6-8,1	880	15,8-16,0
				1200	10,0-14,4			250	4,5-6,7	1020	15,4-15,6
				1250	0 - 9			350	1,5-4,0	1100	15,3-15,4
				1320	0			440	0		

Torque-control travel on flyweight assembly dimension a = 0,2 mm Speed regulation: At 1190-1205 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2		Control rod travel mm 3a		cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7	

Checking values in brackets

Testoil-ISO 4113

C21

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

C21

The numbers denote the sequence of the tests

B. Governor Settings

RQV ..847 DL, 850 DL

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 50	1170	14,4-17,4	-	-	-	ca. 13	50	7,7-11,0	200	0,5-1,2
	1220	9,0-14,0					150	6,6- 9,8	480	3,2-4,0
	1280	1,0- 7,8					250	4,2- 7,2	800	5,0-5,4
	1350	0					350	0 - 3,4	1180	8,4
②a							410	0	1280-1350	end (11)

Torque-control travel dimension a = 0,4 mm/500-700 U/min.

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤ Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1150	97,5-99,5	1190-1205*	800	100,5-103,5	100	11,9-12,9			
			500	max. 98,5		(14+0,3mmRW)			
					250RW	7,0mm			
					RQV:				
					Change-over point				
					180-100 U/min				
PES 6	A..S2382 / RQ..839DL, RQV..847DL, 850DL								
	S2397 / RQ..839DL								

Checking values in brackets

* 1 mm less control rod travel than col. 2

(increase by ± 1,0 cm³!)

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
1150	103,0-105,0	1190-1205*	800 500	105,5-108,5 max. 102,5	100 250RW	11,9-12,9 (14 ± 0,3mmRW) 7,0mm RQV: Change-over point 180-100 U/min			
PES 6	A.. S2382Z / RQ..839DL, RQV..850DL S2397Z								

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 HAN 6,8b
Edition 5.72

En

PE 4 A 90 C 420 RS 2122 EP/RSV 250-900 A4B223D,226D (1)
(D) RS 2122 350-900 A4B223D,226D (2)
RS 2122Z 350-900 A4B226D (3)

supersedes 12.65
company Hanomag
engine D 941

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery "C" cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery "D" cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	9	5,9 - 6,4	0,4	9	5,1 - 5,5	
1000	6 15	2,3 - 3,1 14,2 - 15,5		6	1,6 - 2,6 - - - -	
200	9	3,8 - 4,6		9	1,9 - 3,8	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

250-900 (1)

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Lower rated speed Control-lever deflection in degrees rev/min mm 7 8 9			3 Torque control rev/min mm 10 11	
ca.56	900 940 990	16,0 12,2 5,6	without auxiliary spring			ca.25	250 100 250 400 600	7,0 19 - 21 6,7-7,3 2,5-4,7 0 - 1	800 750 400	0 0,8-1,0 1,3-1,5
2a	970 1040 1150	6,2-10,0 1,5- 3,9 0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational-speed limit Note changed to) rev/min 3		3a Fuel delivery characteristics rev/min cm ³ /1000 strokes 4 5		Starting fuel delivery Idle rev/min cm ³ /1000 strokes 6 7		4a Idle stop rev/min Control rod travel mm 8 9	
900	82,0-84,0	920	700 500	96,5-99,5 92,5-95,5					

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

The numbers denote the sequence of the tests

B. Governor Settings

350-900 (2,3)

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
ca. 56	900	16,0	without auxiliary spring			ca. 29	350	7,9	900	0
	950	11,0					100	19 - 21	700	0,8-1,0
	980	6,8					350	7,6-8,2	400	1,3-1,5
	950	9,7-11,8	with auxiliary spring				"Z"=0,7!			
	1000	4,2- 6,4								
②a	1120	0 - 1,5								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	9 cm³ / 1000
1	2	3	4	5	6	7	8	9	
900	96,0-98,0	920	700	108,5-112,5	100	ca. 21mmRW	350	16,25-20,25	
900	94,0-96,0		500	107,5-111,0					
(2)			700	105,5-109,5					
			500	104,0-108,0					
900	103,0-105,0	920	700	107,0-110,0	100	ca. 21mmRW	350	16,25-20,25	
(3)			500	105,0-108,0					

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps and Governors

VDT-WSP 001/4 DAI 1,7 h

Edition 6.68

PES 4 A 50 B 410 RS 17, 50

EP/M60A 55D, 71D

A 125D

A 156DL ./.

supersedes

Company

engine

2.64

Daimler-Benz

635 U

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,7 + 0,1

mm (from 3DC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	5	6	7
1000	12	2,2 - 2,7	0,2			
	9	0,8 - 1,4				
	18	4,5 - 5,2				
200	9	0,6 - 1,1				

Testoil-ISO 4113

Adjust the fuel delivery from each outlet according to the values in:

B. Governor Settings

Torque control travel mm	Leakage		Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
	Vacuum pressure drop mm water col	Time at least s	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
						A55D	410	12,3	50	13,3-13,4
							470	8,6-12,3	100	12,6-13,0
							700	0,7- 3,2	150	12,3-12,4
						A71D	410	12,3	50	13,3-13,4
							450	7,8-12,3	100	12,6-13,0
						A125D	600	0 - 2,7	150	12,3-12,4

1,0+0,1 500-480 10 300 12,3

control rod travel test (cols 4-11)

= rotational speed 500 rev/min

adjust breakaway (cols 4-5) by means of shims*

cam adjustment (B 8-9 - C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp 40°C (104 F)			Fuel delivery characteristics			Idle (stop)** idle (imbalance)		Control rod travel from full-load to idle mm
rev/min	Vacuum mm wat col	cm ³ /1000 strokes	rev/min	Vacuum mm wat col	cm ³ /1000 strokes	rev/min	Vacuum mm wat col	cm ³ /1000 strokes
1	2	3	4	5	6	7		8
1000	300	28,2 - 29,2	500	50	30,2-33,2			
			750	125	28,2-31,2			
								./.

Checking values in brackets

BOSCH

 Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
 © 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
 Imprime en Republique Federale d'Allemagne par Robert Bosch GmbH

B. Governor Settings

EP/M 60 A 156 DL

DAI 1,7h

-2-

Torque control travel mm 1	Leakage		Control rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
	Vacuum pressure drop mm water col 2	Time at least s 3	Vacuum mm w c 4	Control rod travel mm 5	Vacuum mm w c 6	Control rod travel mm 7	Vacuum mm w c 8	Control rod travel mm ** 9	Vacuum mm w c 10	Control rod travel mm 11
0,95 +0,05	500-480	10	-	-	-	-	330 375 450 500	12,3 7,6-11,8 0 - 6,8 0 - 3,5	150 200 240 290	13,2-13,3 13,0-13,3 12,4-12,7 12,3
* control rod travel test (cols 4-11) rotational speed 500 rev/min adjust breakaway (cols 4-5) by means of shims* cam adjustment (B 8-9 - C 7-8) by means of shims**										

C. Settings for Fuel Injection Pump with Fitted Governor

Full load stop screw Test oil temp 40°C (104 F)			Fuel delivery characteristics			idle (stop)** idle (imbalance)		Control rod travel from full load to idle
rev/min 1	Vacuum mm wat col 2	cm ³ /1000 strokes 3	rev/min 4	Vacuum mm wat col 5	cm ³ /1000 strokes 6	rev/min 7	Vacuum mm wat col 8	mm cm ³ /1000 strokes 8
1100	290	28,4 - 29,4	850 500	200 70	30,7-31,7 29,9-32,9			

Checking values in brackets

- * Set breakaway at n 1100 and WG 330 by means of shims: at WG 360 governor must have regulated 0.2-0.6 mm control-rod travel.

En

D2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

En

PES 4 A 50 B 410 RS 50 EP/M 60 A 121 D
RS 68
RS 68 z

supersedes 2.61
company Daimler-Benz
engine OM 636 E

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,7 \pm 0,1$ mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	5	6	7
1000	12	2,2 - 2,7	0,2			
	9	0,8 - 1,4				
	18	4,5 - 5,2				
200	9	0,6 - 1,1,				

Adjust the fuel delivery from each outlet according to the values in:

B. Governor Settings

Torque control travel mm	Leakage		Control rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
	Vacuum pressure drop mm water col	Time at least s	Vacuum mm w c	Control rod travel mm	Vacuum mm w c	Control rod travel mm	Vacuum mm w c	Control rod travel mm	Vacuum mm w c	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
1,0±0,1	500-480	10	300	12,4			430	12,4	40	13,3-13,4
							500	5 - 11,5	75	12,9-13,3
							550	1,5-7,9	125	12,4-12,7
							600	0 - 4,5		

control rod travel test (cols 4-11)
= rotational speed 500 rev/min
adjust breakaway (cols 4-5) by means of shims*
cam adjustment (B 8-9 - C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full load stop screw Test oil temp 40°C (104 F)			Fuel delivery characteristics			idle (stop)** idle (imbalance)		Control rod travel from full-load to idle
rev/min	Vacuum mm wat col	cm ³ /1000 strokes	rev/min	Vacuum mm wat col	cm ³ /1000 strokes	rev/min	Vacuum mm wat col	mm cm ³ /1000 strokes
1	2	3	4	5	6	7		8
RS 50	1000	300	28,2-29,2	500	50	31,2-33,2		
RS 68	1000	300	22,7-23,7	500	50	24,7-27,7		
RS 68z	1000	300	27,2-28,2	500	50	28,7-31,7		

Checking values in brackets

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 DAI 1,8 o

Edition 2.64

En

PES 4 A 50 B 410 RS 144 z EP/MZ 60 A 93 D

supersedes 1.8.59
company Daimler-Benz
engine OM 636

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	5	6	7
1000	12	2, - 2,7	0,2			
	9	0,8 - 1,4				
	18	4,5 - 5,2				
200	9	0,6 - 1,1				

Testoil-ISO 4113

Adjust the fuel delivery from each outlet according to the values in:

B. Governor Settings

Leakage			Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
Torque control travel	Vacuum pressure drop	Time at least	Vacuum	Control rod travel	Vacuum	Control rod travel	Vacuum	Control rod travel	Vacuum	Control rod travel
mm	mm water col	s	mm w c	mm	mm w c	mm	mm w c	mm	mm w.c.	mm
1	2	3	4	5	6	7	8	9	10	11
0,6±0,1 500-480 10 430 11,9							470 11,9		200	12,4-12,6
							500 9,9-11,6		250	12,3-12,6
							560 7,5- 9,4		320	12 -12,3
							2000 4,6- 5,2			

control rod travel test (cols 4-11)
= rotational speed 500 rev/min
adjust breakaway (cols. 4-5) by means of shims*
cam adjustment (B 8-9 - C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp 40°C (104 F)			Fuel delivery characteristics			Idle (stop)** idle (imbalance)		Control rod travel from full-load to idle mm cm ³ /1000 strokes
rev/min	Vacuum mm wat col	cm ³ /1000 strokes	rev/min	Vacuum mm wat col	cm ³ /1000 strokes	rev/min	Vacuum mm wat col	
1	2	3	4	5	6	7		8
1600	430	23,7-24,7	1200	270	23,7-25,7	0	0	4,9 - 5,2
			900	175	23,7-25,7			
			250	ca. 580	6,2- 8,2			
				dispersion	max. 1,5			

Checking values in brackets

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 DAI 5,6b
Edition 3.64

En

PES 6 A 80 B 410 RS 174 RQV 300-1425 A 427 D

supersedes 19.1.62
company Daimler-Benz
engine OM 322

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,15 + 0,1

Port closing at prestroke mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,3			
	6	1,2 - 2,0				
	15	10,3 - 11,4				
200	9	2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
66±1,5	1425 1450 1500 1550 1600 1700	15 - 18 13 - 16,5 8,5 - 13,5 4 - 10 0 - 6,8 0				10±1,5	200 300 400 600 800 930	7 - 8 4,5 - 6,7 3,2 - 3,8 2 - 3,6 0,3 - 1,5 0	1400 1200 1000 800 600	0 0,4 - 0,6 0,8 - 1,0 1,2 - 1,4 1,4 - 1,6

Torque control travel a = 1,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed ②b limitation intermediate speed ④a		Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery ⑥ Idle switching point		Torque-control ⑤ travel Control rod travel mm	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	
1	2	3	4	5		6	7	8	9
1000	54,0-56,0	1425	1400 700 500	55,5-58,5 56,0-59,0 55,5-59,5		100	mind. 7,9		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 DAI 1,8 q
Edition 10.69

En

PES 4 A 50 B 410 RS 68 EP/RSV 250-1150 A4/307
RS 1010 A4 B333
RS 1010X A4 B333
RS 68, 1010 250- 900 A4 B333 ./.

supersedes 2.64
company Daimler-Benz
engine OM 636

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	2,2 - 2,7	0,3			
	9	0,8 - 1,4				
	18	4,5 - 5,2				
200	9	0,6 - 1,1				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

250 - 1150

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 71	1150	16	without auxiliary spring			ca. 24	250	6	1130	0
	1190	10					100	19 - 21	450	0
	1210	6,2					250	5,7-6,3	300	1,2-1,8
2a	1180	10,3-12,6	with auxiliary spring				300	3,8-5,9		
	1220	3,6- 6,6					420	0 - 1		
	1300	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp 40 °C (104 °F)		Note changed to) rev/min							
rev/min	cm ³ /1000 strokes			rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
"V"	1130	23,7 - 24,7	1160					250	RW 6
"Y"	1130	22,7 - 23,7	1160						

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

D6

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

B. Governor Settings

250-900

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 57	900	16,0	without auxiliary spring			ca. 24	250	6,0	880	0
	940	12,2					100	19 - 21		
	980	7,1					250	5,7-6,3	400	0
	980	4,0-9,2					350	0,8-3,2	290	1,2-1,8
②a	1040	0,5-3,0	with auxiliary spring				450	0 - 1		
	1150	0 - 1								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
880	23,7-24,7	910						250	6,0

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 STE 2,3a (2,3b)
Edition 9.64

En

PES 3 A 65 C 310 RS1140 EP/RSV 250-1200 A1B 432 DL

supersedes
company
engine
Steyr-Daimler-Puch
WD 306a
(36 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	5,7-6,2				
	6 18	1,4-2,1 9,7-10,6				
200	6	0,8-1,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 66	1200 1230 1260	12 8,4 5	without auxiliary spring			ca. 27	250	6	1180	0
2a	1230 1260 1300 1400	7,8-9,2 4-6,2 1,4-3,4 0,3-1					100 250 350 450 600	19 - 21 5,7-6,3 3,6-4,8 0 - 3 0 - 1	1000 800 600 350	0,5-0,7 1,0-1,2 1,3-1,5 1,4-1,6

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40°C (104°F)	rev/min 1	cm ³ /1000 strokes 2	Note changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
	1180	40,0-42,0	1200-1220	1100 700 500	39,2-42,2 45,7-48,7 46,5-49,5	100	6,4-6,9	250	6

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

Test Specifications

Fuel Injection Pumps ② and Governors

VDT-WPP 001/4 KHD 15,8 a
Edition 7.71

En

PE 10 A 75 C 520/4 RS 1137 RQ 200/1150 AA 477 DR (1) supersedes 11.66
 (V 7200) RS 1137,Z RQ 200/1150 AB 583 DR (2) company: KHD
 (V7765D) RS 1137 RQV200/1150 AB 461 DR (3) engine: F 10 L 714
 RS 1137 RQV300-1150 AB 586 DR (4)

1 - 10 - 5 - 7 - 2 - 8 - 3 - 9 - 4 - 6 - 1
 0 - 27 - 72 - 99 - 144 - 171 - 216 - 243 - 288 - 315 - 360°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,7 - 5,1	0,4			
	6	1,9 - 2,6				
	15	10,4 - 11,5				
200	6	0,9 - 1,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 200/1150 AA 477 DR (1)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
** 1130	13,0-13,8	1130	13,4	1150	13,2-13,4	440	0	100	6,0-8,0	400	15,8-16,2
				1180	3,0-12,0			200	3,2-5,8	600	15,3-15,6
				1200	0 - 9			300	0 - 2	800	14,7-15,0
				1250	0			340	0		13,9-14,2
*** 450	15,6-16,4	450	16,0	1170	13,9-14,1	430	0	100	6,6-8,1	800	15,5-15,9
****				1200	4,0-12,0			200	4,2-6,5	900	15,0-15,4
				1220	0 - 8,5			300	0 - 2	1000	14,4-14,8
				1270	0			330	0		

Torque-control travel ** 0,8
 on flyweight assembly dimension a = *** 0,6 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
(1) 1130	79,0 - 81,0	600		1000	82,0 - 85,0		
				600	86,0 - 88,0		
(2) 1130	83,5 - 85,5	600		1000	86,0 - 89,0	100	ca. 18 mm RW
				600	89,5 - 92,5		
(2-Z) 1130	88,0 - 90,0	600		1000	89,5 - 92,5	100	ca. 18 mm RW
				600	93,0 - 96,0		
(3,4) 1130	84,5 - 86,5	1170		1000	84,0 - 87,0	100	ca. 17 mm RW
				600	87,5 - 90,5		

Checking values in brackets

**** Breakaway not
 before n = 1170

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung.
 © 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany
 Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

Testoil-ISO 4113

RQV 200-1150 AB 461 DR (3)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Torque-control travel mm
1	2	3	4	5	6	7	8	9	10	11

Torque-control travel dimension a = 1,2 mm

ca. 68	1150	15,0-18,0	-	-	-	ca. 10	100	7,0-7,6	1130	0
	1200	9,6-14,0					200	4,3-6,6	900	0,4-0,6
	1240	5,5-10,6					300	2,6-3,4	700	0,9-1,1
	1320	0 - 4,4					500	1,2-2,6	400	1,1-1,3
	1370	0					730	0		

RQV 300-1150 AB 586 DR (4)

Torque-control travel dimension a = 0,9 mm

ca. 68	1150	13,0-16,5	-	-	-	ca. 10	100	6,8-8,0	1130	0
	1180	9,0-14,0					300	4,8-7,0	1000	0,3-0,5
	1220	3,4-10,0					400	3,0-5,2	800	0,5-0,7
	1260	0 - 6					500	2,2-3,8	500	0,8-1,0
	1320	0					600	1,0-2,5		
							750	0		

Testoil-ISO 4113

--	--	--	--	--	--	--	--	--	--	--

--	--	--	--	--	--	--	--	--	--	--

--	--	--	--	--	--	--	--	--	--	--

Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

VDT-WPP 001/4 STE 2,3 b

Edition 1.68

En

PES 3 A 75 C 310 RS 1215 EP/RSV 250-1200 A1 B271DL
PES 4 A 75 C 410 RS 1215 EP/RSV 250-1200 A1 B266DL*

supersedes -
company Steyr
engine WD 307(38PS)
WD 407(50PS)*

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,45 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,7 - 5,1	0,4			
	6 15	1,9 - 2,6 10,4 - 11,5				
200	6	0,9 - 1,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Upper rated speed rev/min			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.66	1220	12,0	without auxiliary spring			ca.26	250	6,0	1200	0
	1250	8,8					100	19,0-21,0	1000	0,8-1,0
	1280	4,8					250	5,7-6,3	700	1,6-1,8
	1250	8,0-9,7					400	1,8-3,8	400	1,6-1,8
(2a)	1300	2,5-4,2	with auxiliary spring				560	0 - 1		
	1380	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop		(6) Rotational speed limit		(3a) Fuel delivery characteristics		Starting fuel delivery (5)		(4a) Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min				Idle			
rev/min 1	cm ³ /1000 strokes 2	3	4	cm ³ /1000 strokes 5	6	rev/min 7	cm ³ /1000 strokes 8	rev/min 9	Control rod travel mm 10
1200	47,0-49,0	1200	1000 700	49,5 - 52,5 51,5 - 54,5	100	14,0-14,6		(3 Cyl.)	
1200	45,5-47,5	1200	1000 700	48,5 - 51,5 50,5 - 53,5				(4 Cyl.)*	

Checking values in brackets

* 2 mm less control rod travel than col 2

Testoil-ISO 4113

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany,
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MAN 7,2 e

Edition 7.64

En

PES 6 A 80 C 412 RS 2051

supersedes

company:

MAN

engine:

D 08 36 M 3 H
(135 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,4			
	6	1,2 - 2,0				
	15	10,3 - 11,4				
200	9	2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point ④				Idle speed regulation Setting point ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
1200	14,3-15,1	1200	14,7	1250	14,4-14,7	550	0	450	0	500	15,8-16,4
				1260	12,8-14,7			350	1,6-4,0	700	15,4-15,8
				1290	6,2-12,2			250	4,5-6,5	900	14,9-15,3
				1330	0 - 7,0			150	6,2-8,1	1100	14,7
				1380	0			100	6,7-8,1		

Torque-control travel
on flyweight assembly dimension a =

0,4

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1250	65,0 - 67,0	700	700	63,0 - 66,0	Idle 250	stop 6 mm RW

Checking values in brackets

Testoil-ISO 4113

D12

D12

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 KHD 12,6 f
Edition 3.70

En

PE 8 A 75 B 320 RS 1170 RQ 200/1150 A 468 D
1022 A 475 D
1022 y*
1022 z**

supersedes 5.64
company: K H D
engine: F 8 L 714 = 200PS
* = 195PS
** = 180PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	9	3,8 - 4,2	0,3			
1000	12 15	6,7 - 7,6 9,5 - 10,6				
200	9	2,1 - 2,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
1100	14,3-15,1	1100	14,7	1150 1180 1210 1250	14,4-14,7 5 - 12,6 0 - 8 0	420	0	100 200 300 320	6 - 8,1 3,3-5,7 0 - 1,2 0	500 650 800	15,8-16 15,2-15,7 14,7-15,1
Breakaway not before 1170											

Torque-control travel on flyweight assembly dimension a = 0,4 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1130	89,5 - 91,5	600	1000 600	92,7 - 95,7 93,5 - 97,0	100	ca. 20 mm RW

Checking values in brackets

Testoil-ISO 4113

D13

BOSCH

Geschäftsbereich KH, Kundendienst, Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

DA3

B. Governor Settings

KHD 12,6 f

-2-

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /- 1000 strokes	rev/min		rev/min	cm ³ /- 1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
1130	86,0 - 89,0	600		1000	90,0 - 93,0	100	ca. 18 mm RW
				600	92,5 - 95,5		
1130	79,5 - 81,5	600		1000	83,5 - 86,5		
				600	82,5 - 86,5		

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /- 1000 strokes	rev/min		rev/min	cm ³ /- 1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7

En Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 KRU 5,8 h

Edition 2.64

En

PE 4 A 85 C 320 LS 2043 RQ 400/1950 AA 390 D
LS 2043 z,y,xRQ 400/1900 AA 212 D*

supersedes 1.63
company: Krupp
engine: D 459

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,8 - 0,1 mm (from BDC) RW 9

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,5 - 4,9	0,4			
	6	2,2 - 3,0				
	12	8,9 - 9,5				
200	9	2,6 - 3,4				
	21	14,9 - 17,4				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

AA 390 D

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		Torque control rev/min 11	
	Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		rev/min 9		Control rod travel mm 12
1900	13,8-14,6	1900	14,2	1950 1980 2000 2020 2100	13,8-14,2 8,5-13,6 4 - 12 0 - 9,8 0	720	0	300 400 500 550 620	6 - 8 4,2-6,4 1,5-4 0 -2,5 0	600 1000 1400 1700	15,9-16,8 15,4-15,8 14,6-15,1 14,2-14,4

Torque-control travel
on flyweight assembly dimension a = 0,55 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm ³ /-1000 strokes 2				cm ³ /-1000 strokes 5		cm ³ /1000 strokes/mm 7
LS2043 1900	96,5 - 97,5	1200		1200 1600 1950	98,5 - 100,5 99,5 - 102,5 mind. 96,5	100	21 mm RW
							./.

Checking values in brackets

D15

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

DAS

B. Governor Settings

KRU 5,8 h

-2- ②

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
1650	13-13,8	1650	13,4	1900 1220 1940 1960 2050	13,2-13,4 9,4-13,4 5 - 12 0 - 10 0	730		300 400 500 600 630	6,2-8,1 4,3-6,5 1,8-4,2 0 -1,2 0	700 800 1000 1400 1600	15,6-16,2 15,4-16 15 -15,5 13,9-14,4 13,4-13,9

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm 7
1850	91,0 - 92,0	1200	1200 1500 1880	95,5 - 97,5 89,5 - 91,5 mind. 89,5	100	21 mm RW
1850	81,0 - 82,0	1200	1200 1500 1880	84,0 - 86,0 83,0 - 85,0 mind. 79,5	100	21 mm RW

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm 7
1850	76,0 - 77,0	1200	1200 1500 1880	79,0 - 81,0 78,0 - 80,0 mind. 74,5	100	21 mm RW

En Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 BOS 6,81

Edition 10.66

En

PE 6 A 80 C 321 RS 2044

RQ 200/1200 AA 516 D

RQ 200/1250 AB 604 R*

supersedes 9.64

company: Büssing

engine: S 7(150 PS)

S 7(132 PS)*

* (132 PS) See page 2!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15 + 0,1$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	7,2 - 8,0	0,4			
	6	1,2 - 2,0				
200	6	0,1 - 0,8				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQ 200/1200 AA 516 D

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Test specifications Control rod travel mm 4		Test specifications rev/min 6		Test specifications Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 12	
1200	14,6-15,4	1200	15,0	1250	14,8-15,0	420	0	100	6,4-8,1	850	15,8-16,0
				1270	9,0-14,0			200	3,8-6,0	950	15,4-15,8
				1300	0 - 9,5			250	1,7-4,1	1050	15,0-15,4
				1350	0			320	0		
Breakaway not before n = 1200											

Torque-control travel on flyweight assembly dimension a = $0,3$ mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /-1000 strokes 2				cm ³ /-1000 strokes 5		cm ³ /1000 strokes/mm 7	
150PS							
1200	76,5 - 78,5	500		800	78,5 - 81,5	100	ca. 18,5 mm RW
				500	73,5 - 77,5		
							./.

Checking values in brackets

D17

BOSCH

Geschäftsbereich KH Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

B Governor Settings

RQ 200/1250 AB 604 R*

②

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
450	15,7-16,3	450	16,0	1270	15,6-16,0 1300 9,0-14,5 1340 0 - 8,5 1390 0	440	0	100 200 300 340	6,6-8,1 4,0-6,2 0 - 2 0	-	-
Breakaway not before n = 1270											

Torque control travel
on flyweight assembly dimension a

mm

Speed regulation At

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Testoil-ISO 4113

Full-load delivery on governor control lever Test oil temp 40 C (104 F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm 7
*132PS 1250	61,0 - 63,0	1250			100	ca. 16 mm RW

Checking values in brackets

* Note: When carrying out repairs, the fuel-injection equipment

PE 6 A 80 C 321 RS 2044 Y
RQ 200/1200 AB 516 DR
is to be altered to the equipment indicated below!

PE 6 A 80 C 321 RS 2044
RQ 200/1250 AB 604 R

This does however only apply to the equipment of
the 132 bhp version!

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 MAN 9,7 h

Edition 1.71

En

PES 6 A 85 C 412 RS 2046 RQV 200-1100 AA 515 D
 RS 2046 Z*
 RS 2046 RQV 200-1100 AA 508 D

supersedes 3.67
 company: M A N
 engine: D 2146 M 1
 D 2146 M 11 *
 172PS
 180PS*

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,9 - 5,5	0,4			
	6 15	1,3 - 2,1 12,4 - 13,1				
200	6	0,2 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 66	1100	15,0-18,0				ca. 10	150	7,1-8,0	1100	0
	1150	9,0-13,2					250	4,0-6,2	700	0,1-0,3
	1200	3,0- 9,2					400	2,7-3,8	500	0,9-1,1
	1300	0					550	1,2-2,6		
							720	0		

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Z	1080	96,5 - 99,5	1120	700	90,5 - 94,5			
Y	1080	89,5 - 91,5	1120	600	90,5 - 93,5			

Checking values in brackets

* 1 mm less control rod travel than col. 2

D19

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 MAN 7,2 c

Edition 2.64

En

PES 6 A 80 C 412 RS 2051 RQV 250-1250 AA 514
* RQV 250/600-900/1250 AA473

supersedes

company:

MAN

engine:

D 0836 M 2

* See page 2!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5				
	6 15	1,2 - 2,0 10,3 - 11,4				
200	9	2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQV 250-1250

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 66	1250	15 - 18				ca. 10	100	7,1 - 8		
	1300	10,2 - 14,8					200	4,9 - 7,1		
	1350	5,2 - 11,3					300	3 - 3,8		
	1400	0 - 7,6					450	2,2 - 3,8		
	1450	0 - 3,8					600	1,1 - 2,4		
	1500	0					790	0		
						3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1250	68,5 - 70,5	1260 - 1280						./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

D20

BOSCH

Geschäftsbereich KM Kundendienst, Kfz-Ausrüstung.
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
62±1,5	900	17,6- 23				10±1,5	100	6,6-8		
	1100	15					200	5,2-7,4		
	1250	14,8-15,2					400	3,6-4		
	1300	8,2-12,8					600	2,5-4		
	1360	0 - 6,2					700	0 -2,2		
	1410	0					760	0		

[illegible]

* 1 mm less control rod travel than col. 2

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)

bar (= maximum full-load control rod travel)

224

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 HEN 6,1 g

Edition 9.64

En

PE 6 A 80 C 412 RS 2005
RS 2005 ZRQ 200/1250 AA 398 D
1300 AA 398 D*supersedes
company:
engine:4.62
Henschel
522 DPL
(150 PS)
522 TAF-T
(144 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,85 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	6	2,2 - 3,0	0,4			
	9	5,5 - 6,0				
	15	11,5 - 12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

RQ 200/1250 AA 398 D

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Setting point rev/min 3		Control rod travel mm 4		Test specifications rev/min 5		Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		Torque control rev/min 11		Control rod travel mm 12	
1200		14,4-15,2		1200		14,8		1270	14,5-14,8	420		0		100	6,0-8,0			800		15,8-16,0	
								1290	9,0-14,0					150	5,0-7,0			900		15,4-15,8	
								1320	0 - 9,0					200	3,3-5,7			1000		14,8-15,3	
								1370	0					250	1,3-4,0						
														320							

Torque-control travel
on flyweight assembly dimension a = 0,35 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6		Control rod travel mm 7	
1230	72,0-74,0	800		800	74,5 - 77,5	100		mind. 9,9	
				600	71,5 - 75,5				
									./.

Checking values in brackets

Testoil-ISO 4113

D22

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

222

B. Governor Settings

RQ 200/ 1300 AA 398 D*

HEN 6,1 g

-2-

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1250	14,3-15,1	1250	14,7	1320	14,4-14,7	430	0	330	0	750	16,0
				1340	9,3-14,1			300	0 - 2,0	800	15,8-16,0
				1360	2,5-11,2			200	4,3-6,6	900	15,4-15,8
				1380	0 - 7,9			100	6,7-8,1	1000	15,0-15,4
				1400	0 - 4,4					1100	14,7-14,9
				1430	0					1250	14,7

Torque-control travel
on flyweight assembly dimension a -

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /- 1000 strokes	rev/min		rev/min	cm ³ /- 1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7
RS2005Z							
1280	61,0 - 63,0	700		1000	63,5 - 66,5		
				700	64,0 - 67,0		

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel
on flyweight assembly dimension a -

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /- 1000 strokes	rev/min		rev/min	cm ³ /- 1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7

En Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MAN 8,7g
(8,7h)

Edition 2.64

En

PES 6 A 85 B 421 LS 2031

RQ 200/1000 A 428 D
MAN-Nr. 225

supersedes

4.62

company.

M A N

engine

D 1546MTU2S
(180 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,9 - 5,5	0,4			
	6 15	1,3 - 2,1 12,3 - 13,1				
200	9	3,9 - 4,4				

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications Control rod travel mm 9	rev/min 10	rev/min 11	Control rod travel mm 12
950	13,8-14,4	950	14,1	1000 1020 1040 1080	13,8-14,1 5 - 13 0 - 8 0	410	0	100 150 200 250 310	7 - 8,1 5,7-7,8 3,8-6 1,2-3,8 0	400 600 800	15,8-16 15 - 15,4 14,3-14,6

Torque-control travel
on flyweight assembly dimension a = 0,6 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /~1000 strokes 2	rev/min 3	rev/min 4	cm ³ /~1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm Control rod travel 7
980	104,5 - 106,5	500				

Checking values in brackets

D24

324

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 HEN 6,1 n
Edition 2.64

En

PE 6 A 80 B 412 RS 2005 RQV 200-1250 A 443 D
RS 2005 z* RQV 200-1300 A 443 D

supersedes

company: Henschel
engine: 522 DPL
522 TAF

* See page 2!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,85 \pm 0,1$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0	0,4			
	6 15	2,2 - 3,0 11,5 - 12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

RQV 200-1250

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
65±1,5	1250	15 - 18				10±1,5	100	7 - 8	1250	0
	1300	10 - 14,2					200	5 - 7	1100	0,1-0,3
	1350	5 - 10,4					400	2,5-3,8	900	0,4-0,6
	1400	0 - 6,4					600	1,2-2,5	700	0,6-0,8
	1490	0					830	0	500	0,7-0,9
						3a				

Torque control travel a = 0,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational speed limitation intermediate speed 4a	Fuel delivery characteristics high idle speed 5b		Starting fuel delivery Idle switching point 6		Torque-control travel 5	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1230	72,0 - 74,0	260	800 600	74,5 - 77,5 71,5 - 75,5		To be specified by customer		./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung.
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50. Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

E1

E4

B. Governor Settings

ROV 200-1300 / PE HEN 6,1 n RS 2005 z

-2-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
66±1,5	1300	15 - 18				10±1,5	100	6,6-8	1300	0
	1350	10,8-15					200	4,5-6,8	1200	0,1-0,3
	1400	5,8-11,8					300	3,2-3,8	1000	0,4-0,6
	1450	0 - 8,2					400	2,8-3,8	800	0,6-0,8
	1500	0 - 4,6					600	1,4-2,8	600	0,7-0,9
	1550	0				3a	330	0		

Torque control travel a = 0,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	9
1280	62,0 - 64,0	1310 - 1320	1000	63,5 - 66,5		To be specified by customer	
			700	64,0 - 67,0			
			500	59,5 - 63,5			

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
						3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	9

Checking values in brackets

* 1 mm less control rod travel than col 2

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MAN 7,0 a

Edition 6.67

En

PES 6 A 85 B 412 RS 2026
PES 6 A 85 C 412 RS 2144
RS 2144

RQ 250/1250 A420D,484D,MAN-Nr.273
RQ 250/1250 AB 557 DL
RQ 250/1050 AAV 8115 D* ./.

supersedes 2.64
company: M A N
engine: D 0836 HM3U(150PS)
HM5U(150PS)
HM3U*(130PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,9 - 5,5	0,4			
	6 15	1,3 - 2,1 12,3 - 13,1				
200	9	3,9 - 4,4				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
1200	14,0-14,8	1200	14,4	1250 1280 1300 1320 1380	14,0-14,4 8,0-13,0 3,0-11,0 0 - 8,8 0	540	0	100 200 300 400 440	6,4-8,1 5,2-7,4 3,0-5,2 0 - 2,0	500 700 900 1100	15,7-16,2 15,2-15,7 14,8-15,2 14,4-14,7

Torque-control travel on flyweight assembly dimension a = 0,5 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm ³ /1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm ³ /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7	
1230	71,5 - 73,5	700		700	70,5 - 73,5	250	6 mm RW

Checking values in brackets

E3

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

E3

B. Governor Settings

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
PRG check		Setting point		Test specifications		Setting point		Test specifications		Control rod	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12
1000	14,5-15,1	1000	14,8	1070	14,2-14,5	560	0	100	7,2-8,1	500	15,7-16,3
Breakaway not before n = 1070				1100	8,0-12,8			200	6,9-8,0	750	14,8-15,2
				1130	0 - 8,8			300	3,7-5,9		
				1190	0			460	0	1000	14,6-15,0

Torque-control travel
on flyweight assembly dimension a

0.5

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	Control rod travel
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes / mm 7
1050	73,5 - 75,5	700	700	76,0 - 79,0		

Checking values in brackets

B. Governor Settings

[illegible]

**Torque-control travel
on flyweight assembly dimension a**

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	Control rod travel
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7

Checking values in brackets

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 OMB 4,4a

Edition 6.65

En

PES 4 A 85 C 410 RS 2090
.. RS 2090,z

EP/RSV 250-800 A 4 B 182 D
-875 A 4 B 182 D

supersedes
company
engine

11.64
OM-Brescia
OM/CO 2 D/45
D/60

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15 \pm 0,1$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,9 - 5,5	0,3			
	6	1,3 - 2,1				
	15	12,4 - 13,1				
200	6	0,2 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV 250-800 A 4 B 182 D

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4			Lower rated speed rev/min 8			3 Torque control rev/min 10	
Control rod travel mm 2	Control rod travel mm rev/min 3					Control rod travel mm 9			Control rod travel mm 11	
ca. 54	800 12 840 8,2 870 5,1		without auxiliary spring			ca. 30	250 7		780 0	
	850 6,2-8,2 900 2,3-3,9 950 0,3- 2 1000 0,3- 1						100 19 - 21 200 8,1-9,1 250 6,7-7,3 400 3 - 5 600 0 - 1		650 0,3-0,5 500 0,6-0,8	
2a			with auxiliary spring							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational-speed limit Note changed to) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop rev/min 8	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7		Control rod travel mm 9	
780	58,0 - 60,0	810 - 820	600 500	58,5 - 60,5 56,5 - 59,5		100	mind. 19 mm RW		
									./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Testoil-ISO 4113

E5

E5

B. Governor Settings

EP/RSV 250-875 A 4 B 182 D

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 49	875 890 910	12 9,4 5,6	without auxiliary spring			ca. 22	250	7	850	0
							100	19 - 21	700	0,2-0,4
							200	10 - 12	600	0,4-0,6
							250	6,7-7,3	500	0,5-0,7
							400	1,3-4,6		
							600	0 - 1		
②a	900 950 990 1050	6,4-8,6 1,8-3,3 0,3-1,4 0,3 - 1	with auxiliary spring							

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
850	62,0-71,0	880 - 890		600 500	62,25-65,25 60,5 - 63,5	100	mind. 19 mm RW		
850	68,0-70,0	880 - 890		600 500	67,0 - 69,0 65,5 - 68,5	100	mind. 19 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 DAI 5,7 k
Edition 3.67

En

PES 6 A 80 C 410 RS 2085 Z
RS 2164 Z
RS 2194 Z

EP/RSV 300-1300 A 1 B 439 DL

supersedes
company
engine

Daimler-Benz
OM 352 (100PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,3 - 4,8	0,4			
	6	1,8 - 2,6				
	15	10,4 - 11,6				
200	9	2,4 - 3,4				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 73	1320	16,0	without auxiliary spring			ca. 28	300	7,5	1300	0
	1350	12,5					100	19 - 21	1150	0
	1390	6,8					300	7,2-7,8	1000	0,4-0,6
	1380	6,3-9,8	with auxiliary spring				400	4,8-6,1	800	0,9-1,1
	1450	1,1-3,9					500	0,8-4,2	400	0,9-1,1
	1559	0,3-1,0					650	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40°C (104°F)		Note changed to)							
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
1300	45,5-47,5	1320		1000	44,0 - 47,0	100	7,9 - 9,9	300	7,5
				800	45,0 - 48,0	(14,2	14,4mmRW)		
				500	41,0 - 44,5				

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany,
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 DAI 5,7 c

Edition 10.65

En

PES 6 A 80 C 410 RS 2085 RQV 300-1000/1425 AB 530 DL
RS 2085 Z /1475 AB 555 DL
RS 2085 Y AB 561 DL

supersedes 4.65
company Daimler-Benz
engine OM 352
126 PS
Y 110 PS
Z 100 PS

Refer to VDT-BMP 211/15 for testing of automatic control-
rod stop. Measure pump with suction-gallery flushing
(overflow valve)!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0				
	6	2,2 - 3,0				
	15	11,5 - 12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

RQV 300-1000/1425 AB 530 DL

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
68±1,5	1400	12,0-15,4	62±1,5	1000	12,0-14,6	10±1,5	200	7,8-8,0	1000	0
	1450	8,0-12,5		1100	5,2- 8,2		300	6,0-6,8	800	0,3-0,5
	1500	3,4- 9,6		1200	5,2- 5,6		350	5,0	500	0,6-0,8
	1550	0 - 6,6		1400	1,7- 4,8		400	3,2-3,9		
	1660	0		1490	0		600	0,8-2,0		
						3a	740	0		

Torque control travel a = 0,7 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1400	56,5 - 58,5	1425	1000	54,0 - 57,0	100	13,2-13,8	700	
			800	53,0 - 56,0		mm RW		
			500	47,5 - 51,5				
								./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

E8

E8

BOSCH

Geschäftsbereich KM Kundendienst Kfz-Ausrüstung
c by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

B. Governor Settings

RQV 300-1000/1475 AB 555 DL, 561 DL

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
68±1,5	1450	12,0-15,0	62±1,5	1000	12,0-14,8	10±1,5	200	7,6-8,0	1020	0
	1500	8,0-12,6		1050	9,0-11,8		300	6,1-6,8	900	0,3-0,5
	1550	3,5-10,0		1100	5,2- 8,4		350	5	700	0,6-1,0
	1600	0 - 7,0		1250	5,4		400	3,3-3,9	500	1,1-1,3
	1710	0		1450	1,0- 4,0		600	0,7- 2		
				1520	0	(3a)	730	0		

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1450	41,0 - 43,0	1475	1000	38,5 - 40,5	100	14,2-14,8	700	
			800	39,5 - 42,5		mm RW		
			500	36,0 - 39,5				

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
Y	1450	45,5 - 47,5	1475	1000	44,5-47,5					
				800	45,0-48,0					
				500	41,0-44,5	(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 FOR 4,2 c
2. Edition

PES 4 A 85 C 410/3	RS2309	EP/RSV 300-1400	A0B594DL (1)	supersedes	8.73
D 210	RS2378		644DL	company	Ford England
PES 6 A 85 C 410/3	RS2314	EP/RSV 300-1400	A0B595DL (2)	engine	Parent-Bore
			645DL, 702DL		254 (1)
PES 6 A 85 C 410/3	RS2314	EP/RSV 300-1400	A0B593DL (3)		363 (2)
			646D1, 703DL		380 (3)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing difference between
control-rod travel 9 and 21 4-5°

Port closing at prestroke 2,5+0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery "C" cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery "D" cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,9 - 5,5	0,3	9	4,9 - 5,5	
	6	1,3 - 2,1				
	15	12,3 - 13,1				
200	9	3,9 - 4,4		6	0,1 - 0,9	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
300-1400 ca.70	A0 B594D, 644D	1400 12,0	1)			ca.23	325	6,8	1400	0
		1520 9,2	**				200	19 - 21	800	0,6-0,8
		1650 5,8					325	6,5-7,1		
		1550 7,9-8,2					500	2,2-4,3	400	1,1-1,3
		1700 3,6-5,3	***				680	0 - 1		
2a		1940 0 - 1								
300-1400	A0 B595D, 645D (2) 702D									

ca.70	1400	12,0				ca.23	325	6,8	1400	0
	1570	8,0	**				200	19 - 21		
	1650	5,8					325	6,5-7,1	800	0,4-0,6
	1550	7,9-8,9					500	2,1-4,2	400	0,9-1,1
	1750	2,2-4,2	***				680	0 - 1		
	1820	0 - 1								
300-1400	A0 B593D, 646D (3), 703D									
ca.70	1400	12,0	**				325	6,6	1400	0
	1570	8,0	without auxiliary	ca.23			200	19 - 21		
	1650	5,8	spring				325	6,3-6,9	900	0,4-0,6
	1550	7,9-8,9	***				500	2,2-4,2	400	0,9-1,1
	1750	2,2-4,2	with auxiliary				680	0 - 1		
	1820	0 - 1	spring							

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

3.74

Testoil-ISO 4113

E11

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation Control-rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes
1	2	3	4	5	6	7

** 254 (1)		1470:				
1400	56,5-58,5	0,5 - 1,0 mm RW	600	54,0 - 57,0	100	min. 20 mmRW
		*				
						325 7,9 - 11,9

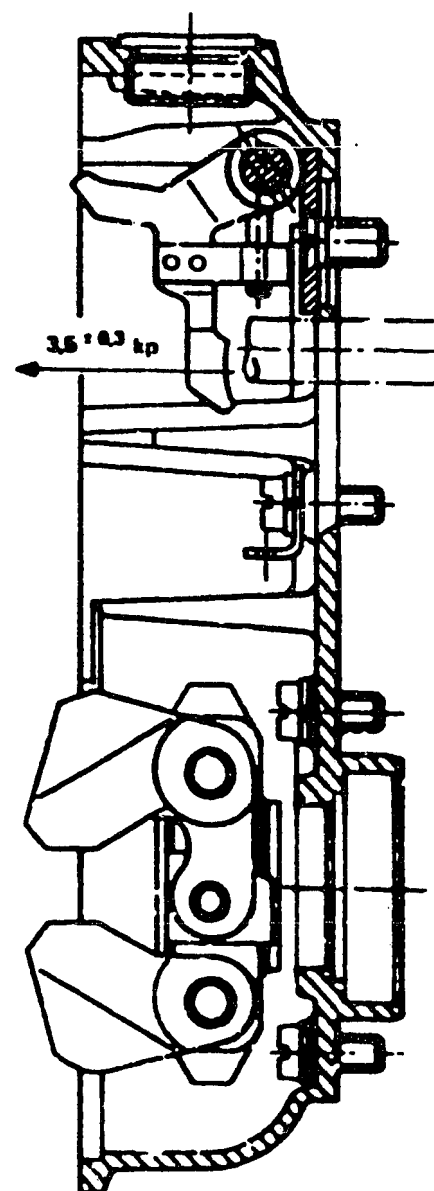
** 363 (2)		1470:				
1400	47,0-49,0	0,5 - 1,0 mm RW	600	41,5 - 44,5	100	min. 20 mmRW
		*				
						325 7,9 - 11,9

** engine 380 (3)		1470:				
1400	53,0-55,0	0,5 - 1,0 mm RW	600	48,0 - 51,0	100	min 20 mmRW
		* less than column 2				
						325 7,9 - 11,9

Test sequence:

With this assembly, the control rod cannot be blocked for basic adjustment, since there is no thread on the pump end face. The following test sequence is thus required:

1. Temporary basic setting by means of full-load stop of governor (without torque-control retainer); Speed-control lever to full - $n = 1000 \text{ min}^{-1}$. CRT 9 mm. - and $n = 200 \text{ min}^{-1}$, CRT 6 mm, speed-control lever on idle and with idle stop.
2. Set start of delivery at CRT 9 mm and start-of-delivery difference.
3. Governor test and full-load setting.
(3.1 and 3.3 only for 644 D, 645 D, 646 D).
- 3.1 Use spring balance to check disengaging force of cold-start device at 0 min^{-1} (at inner starting lever at control-rod boss level with governor cover removed). See sketch! If necessary, retension leaf spring!
- 3.2 Governor test and full-load adjustment as prescribed in WPP 001/4 - 1st Supplement.
- 3.3 At idle speed, set stop screw of starting lever to 20.0 - 20.5 mm control-rod travel. Switching - from starting to full-load control-rod travel - must take place at $n = 800-1000 \text{ min}^{-1}$.



Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MAN 9,7 m

2. Edition

En

PES 6 A 95 C 420 LS 2328 RQ 200/1050 AB782DR (1)
(421) 200/1050 AB848DR (2)*
(D) 200/1100 AB782DR (3-4)*

supersedes 3.72

company: M A N

engine:
D 2156 HM 11/51/52 U
(1 - 192 PS)

D 2156 HMXU 036/37/38
* (2 - 192 PS)

D 2356 HM 51/52 U
(3 - 230 PS)

D 2356 HMXU 062/63/66
* (4 - 230 PS)

* Items 2 and 4 - engine with standard nozzle-holder assembly.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	8,4 - 9,0	0,5	9	7,5 - 8,0	
	6	4,0 - 5,0		6	3,2 - 4,2	
	15	16,3 - 17,8			-----	
200	6	1,4 - 2,6		6	0,5 - 1,4	

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

200/1050 AB782 DR (1)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		④		④		⑤		⑤		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,7-16,3	600	16,0	1070	15,8-16,0	570	0	100	6,6-8,1	-	-
				1100	10,0-15,0			200	5,4-7,5		
				1150	0 - 8,7			300	3,4-5,6		
				1200	0			470	0		

Torque-control travel
on flyweight assembly dimension a = 0 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1050	108,0-110,0	1050		700	104,5 - 107,5	100	mind. 18mm RW
						200	6 mm RW

Checking values in brackets

11.73

Testoil-ISO 4113

E13

E13

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

B. Governor Settings

VDT-WPP 001/4 MAN 9,7 m
200/1050 AB848DR (2)

-2- (2)

Checking of slider PRG check		Full-load speed regulation		Idle speed regulation		Torque control	
Control rod travel mm		Setting point	Test specifications	Setting point	Test specifications	Control rod travel	
rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8
600	15,7-16,3	600	16,0	1070	15,0-15,4	100	6,6-8,1
				1110	9,6-13,8	200	5,4-7,5
				1150	0 - 8,8	300	3,2-5,6
				1200	0		
						650	15,8-16,0
						800	15,4-15,6

Torque-control travel
on flyweight assembly dimension a = 0,2 mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	Control rod travel
rev/min	cm ³ /- 1000 strokes	rev/min	rev/min	cm ³ /- 1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
1050	101,5 - 103,5	500	800	103,5 - 106,5	100	mind. 20 mmRW
			500		200	6 mm RW

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation		Idle speed regulation		Torque control	
Control rod travel mm		Setting point	Test specifications	Setting point	Test specifications	Control rod travel	
rev/min	mm	rev/min	mm	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8
600	15,7-16,3	600	16,0	1120	15,6-16,0	100	6,6-8,1
				1150	9,0-14,2	200	5,4-7,3
				1180	0 - 10	300	3,3-5,3
				1240	0	450	0

Torque-control travel
on flyweight assembly dimension a = 0 mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	Control rod travel
rev/min	cm ³ /- 1000 strokes	rev/min	rev/min	cm ³ /- 1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
1100	125,0-128,0	500	800	124,0 - 129,0	100	mind. 18mm RW
			500	max. 122,5	200	6mm RW

(increase by ± 1,0 cm³!)

Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MAN 16,0 a
2. Edition

En

PE 10 A 90 D 520/5 LS 2362 (1)
PE 8 A 90 D 320 LS 3272 (2)

RQ 250/1250 AB 832 D
RQV 250-1250 AB 841
AB 852 D

supersedes 4.73
company: M A N
engine: D 2530 MF
(1-320PS)
D 2538 M..MF..
(12,8-2-256 PS)

See BMP 101/1012

Cam sequence and angular spacing:

10- 9 - 4 - 1 - 8 - 7 - 6 - 3 - 5 - 2 - 10
0-45 -72 -117-144-189-216-261-288-333-360° (1)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

8 - 7 - 2 - 6 - 3 - 5 - 4 - 1 - je 45° (2)
Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Cyl. 10 (1)
Cyl. 8 (2)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,7 - 6,2	0,4			
	6	2,2 - 3,2				
	9	3,5 - 4,5				
200						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ .. AB 832 D (1 u. 2)

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Control rod travel mm 6		Control rod travel mm 8		Control rod travel mm 12		Control rod travel mm 12	
600	15,7-16,3	600	16,0	1270	15,6-16,0	560	0	150	6,9-8,1	-	-
* Sect. C, col. 2		2		1320	8,3-13,3			250	6,2-7,4		
				1380	0 - 7,2			350	2,2-4,5		
				1450	0			460	0		

Torque-control travel on flyweight assembly dimension a = 0 mm * Speed regulation: At 1300 = 0,5 - 1,5 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /-1000 strokes 2		Control rod stop mm 3a		cm ³ /-1000 strokes 5		Control rod travel mm 7	
1250	101,0-103,0 (102,0-104,0)	1250		500	max. 97,0	100	13,4 - 14,4
						250	7 mm RW

Checking values in brackets

Testoil-ISO 4113

E15

EAS

BOSCH

Geschäftsbereich KH Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

11.73

RQV .. 841, 852D (1 u. 2) *

①

3a

- 1 mm less control rod travel than col. 2

- * RQV governor with special design - "variable idle stage" - adjustment in accordance with test instructions WPP 001/4, 6 and 7th Supplement: Set sliding-sleeve travel up to 500 min⁻¹ by means of shims beneath centre spring - maximum of 2 per governor side permitted.

Test at $n =$ rev/min decreasing increasing pressure - in bar gauge pressure

En

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 KHD 8,7 a
Edition 6.68

En

PE 6 A 85 C 320 RS 2200; Z, Y RQ 250/1150 AB 606 DR
RQV 200-1150 AB 608 DR

supersedes

company: K H D

engine: F 6 L 814 (156 PS)
(150 PS)
(140 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,9 - 5,5	0,4			
	6 15	1,3 - 2,1 12,3 - 13,1				
200	9	3,9 - 4,4				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 250/1150 AB 606 DR

Checking of slider FRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
1100	14,7-15,3	1100	15,0	1170 1200 1230 1290	14,7-15,0 7,0-11,0 0 - 8,5 0	500	0	100 200 300 400	6,2-8,1 4,7-6,9 2,0-4,4 0	700 800 900	15,8-16,0 15,4-15,8 15,0-15,2

Torque-control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1150	78,5 - 80,5	700	1000 700	80,5 - 83,5 81,5 - 84,5	100	ca. 18 mm RW
						./.

Checking values in brackets

Testoil-ISO 4113

E17

E17

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca .66	1150 1200 1240 1300 1370	15,0-18,0 9,6-14,0 5,5-10,6 0 - 6 0	-	-	-	ca .10	100 200 300 500 730	7,0-7,6 4,3-6,6 2,6-3,4 1,2-2,6 0	1150 900 700 400	0 0,4-0,6 0,9-1,1 1,1-1,2
						(3a)				

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1150	68,0 - 70,0	700	1000 700	72,5 - 75,5 75,5 - 79,5				

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
						(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 MAN 9,7 d

Edition 3,67

En

PES 6 A 95 C 410 RS 2071

RQV 200/600-800/1050 AA 469D

supersedes

2.64

company:

M A N

engine:

D 2146 MT

RQV 200 - 1050 AA 512 D

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,95 \pm 0,1$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	8,4 - 9,0	0,4			
	6	4,0 - 5,0				
	15	16,3 - 17,8				
200	6	1,4 - 2,6				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQV..AA 469 D

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
62±1,5	1040 1080 1120 1160 1200 1240	14,8-15,2 11,0-15,2 6,0-11,6 0 - 7,8 0 - 3,8 0				10±1,5	100 200 400 540 600 720	6,4-8,0 4,2-6,2 3,8 3,6-4,0 2,0-4,0 0	820 750 650 600	0 0,3-0,5 0,7-0,9 0,9-1,1

Torque control travel a = $1,0$ mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2)		Rotational-speed (2b) limitation intermediate speed (4a) rev/min	Fuel delivery characteristics (5a) high idle speed (5b) rev/min		Starting fuel delivery (6) Idle switching point rev/min	Torque-control (5) travel rev/min	Control rod travel mm	
1 rev/min	cm³/1000 strokes 2	3 rev/min	4 rev/min	5 cm³/1000 strokes	6 rev/min	7 cm³/1000 strokes	8 rev/min	9 mm
1030	116,0-119,0	1050-1060	700 1050	117,0-121,0 115,5-119,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

RQV .. AA 512 D

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 65	1050 1100 1150 1200 1250	15,0-18,0 8,7-13,3 2,8- 9,0 0 - 4,4 0	-	-	-	ca. 10	100 200 300 450 600 680	6,8-8,0 5,0-7,0 3,0-3,8 1,8-3,1 0,2-1,3 0	1000 800 600	0 0,7-0,9 0,9-1,1
						(3a)				

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
						(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery Idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

②

Test Specifications

Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 HEN 6,5 a
Edition 3.69

En

PE 5 A 85 C 412 RS 2247 RQ 250/1300 AB675DL**
PE 4 A 85 C 412 RS 2248 RQ 250/1300 AB665DL*
EP/RSV..A4B276DL,..291DL
..A7B298L, ..A1B499DL ./.

supersedes 5,2a (12.68)
company: Henschel
engine: 551
541*(5,2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	9	4,9 - 5,5	0,4			
1000	6 15	1,3 - 2,1 12,3 - 13,1		** Note: Governor with obliterated or modified type designation has been altered by Henschel to version RQ 250/1300 AB675DL. Fit new nameplate when performing repairs!		
200	6	0,1 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ .. AB675DL**

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control					
①		Setting point		Test specifications		④		Setting point		Test specifications		⑤		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	12				
1250	15,7-16,3	1250	16,0	1300	15,6-16,0	610	0	180	6,4-8,1	-	-				
Breakaway not before n = 1320				1350	9,6-13,8			250	5,3-7,4						
				1380	5,2-11,0			350	3,2-5,3						
				1420	0 - 7,4			510	0						
				1490	0										

Torque-control travel on flyweight assembly dimension a = 0 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1300	74,5 - 76,5	1300			100	ca. 16 mm RW
						./.

Checking values in brackets

Testoil-ISO 4113

E21

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

E21

B. Governor Settings

RQ.. AB665DL*

HEN 6,5a

-2-

(2)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
		Setting point		Test specifications		Setting point		Test specifications			
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
550	15,7-16,3	550	16,0	1320	15,5-16,0	520	0	150	7,3-8,1	-	-
Breakaway not before n = 1320				1350	8,5-14,2					250	5,0-7,2
				1380	0 -10,0					350	1,2-3,5
				1440	0					420	0

Torque-control travel
on flyweight assembly dimension = 0 mm

B. Governor Settings

EP/RSV ...

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel Torque-control travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
250-1100 A 4 B 276 DL										
ca.72	1100	16,0				ca.29	250	6,0	1080	0
	1150	10,5	*				100	19 - 21		
	1190	4,9					250	5,7-6,3	800	0,4-0,6
	1160	7,6-10,5					400	2,0-3,9		
	1200	3,2- 5,6	**				560	0 - 1	350	1,2-1,4
	1300	0 - 1								
250-1100 A 4 B 291 DL										
ca.72	1100	16,0				ca.29	250	6,0	1080	0
	1150	10,6	*				100	19 - 21		
	1180	6,4					250	5,7-6,3	950	0,3-0,5
	1160	8,0-10,8					400	2,0-3,9		
	1200	3,4- 5,4	**				560	0 - 1	350	0,6-0,8
	1320	0 - 1								
250-900 A 7 B 498 L										
ca.60	900	16,0				ca.25	250	6,0	880	0
	940	11,4	*				100	19 - 21		
	970	6,8					250	5,7-6,3	400	0
	950	8,0-11,0					320	2,6-4,2		
	1000	2,0- 3,3	**				430	0 - 1	300	1,2-1,8
	1080	0 - 1								
250-1200 A 1 B 499 DL										
ca.72	1200	16,0				ca.29	250	6,0	1180	0
	1250	12,0	*	without auxiliary			100	19 - 21		
	1300	6,8		spring			250	5,7-6,3		
	1280	7,5-10,1					400	2,2-4,0	400	0
	1350	2,0- 4,8	**	with auxiliary			580	0 - 1		
	1450	0 - 1		spring						

For full-load deliveries with EP/RSV governor, refer to Henschel sheet supplied with every engine.

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 HEN 7,8 b

Edition 6.69

En

PE 6 A 85 C 412 RS 2253, Z RQ 250/1300 AB674 D, 675 D
RS 2253 RQV250/1300 AB652 D
RS 2253, Z RQV250-750/1300 AB 705

supersedes 12.68
company: Henschel
engine: 561
160 PS
"Z" 170 PS

EP/RSV ... See HEN 5,2 a

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,5 \pm 0,1$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,9 - 5,5	0,4			
	6	1,3 - 2,1				
	15	12,3 - 13,1				
200	6	0,1 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQ ... AB 674 D, 675 D

Checking of slider PRG check		①		Full-load speed regulation				④		Idle speed regulation				⑤		Torque control		③	
Setting point		Test specifications		Setting point		Test specifications		Setting point		Test specifications		Setting point		Test specifications		Setting point		Test specifications	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1250	15,7-16,3	1250	16,0	1320	15,6-16,0	630	0	200	6,2-8,1										
				1350	11,0-15,0			300	4,5-6,6										
				1380	6,2-12,4			400	1,8-4,2										
				1420	0 - 8,4			530	0										
				1490	0														
Breakaway not before n = 1320																			

Torque-control travel on flyweight assembly dimension a = 0 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		② cm ³ /1000 strokes 2		Control rod stop rev/min 3		③a Fuel delivery characteristics rev/min 4		③b cm ³ /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6		⑥ Control rod travel cm ³ /1000 strokes/mm 7	
"Z"	1300	76,5 - 78,5	700	700	69,0 - 72,0	1300	82,5 - 84,5	800	80,5 - 83,5	100	ca. 16 mm RW		
(increase by $\pm 0,5$ cm ³ !)													

Checking values in brackets

E23

E23

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

B. Governor Settings

RQV ...

AB 652 DL

HEN 7,8 b

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1300 1380 1460 1560	15,0-18,0 8,2-13,0 0 - 7,3 0	-	-	-	ca. 10	150 250 400 600 820	7,1-8,0 4,2-6,6 2,7-3,8 1,3-2,6 0	1300 1000 600	0 0,3-0,5 0,4-0,6
						3a				

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	8	9
1300	78,0 - 80,0	1320	800 600	78,0 - 81,0 74,5 - 77,5	100	18,0-18,6	
** (increase by ± 0,5 cm ³ !)							

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

RQV ... AB 705 L

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	1300 1350 1400 1450 1540	13,0-15,7 9,0-12,7 4,7- 9,6 0 - 6,2 0	ca. 52	800 900 1050 1340	12,5-13,5 7,3- 9,7 0,4- 0,8 0	ca. 10	150 250 400 500 620	6,6-8,0 5,3-7,0 2,4-4,2 0,5-1,5 0	-	-
						3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	8	9
"Z" 1300 1300	76,5-78,5 82,5-84,5 **	1320	700 800	69,0-72,0 80,5-83,5	100	18,0-18,6	

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 SCL 5,7a
Edition 12.70

En

PES 6 A 85 C 410 RS2268,
U..Z*

EP/RSV 250-950 A1 B524D
250-1000 A1 B561D

supersedes -
company Schlüter
engine SDM ...W6*
(see page 2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	6	1,3 - 2,1	0,4			
	9	4,9 - 5,5				
	15	12,3 - 13,1				
200	6	0,1 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

250-950A1 B524D / 250-1000 A1 B561D

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca.48	950 970 1000	12,0 9,2 4,4	without auxiliary spring			ca.20	250	5,5	930	0
	980 1020 1100	6,6-8,5 2,6-4,0 0 - 1					150 250 350 530	19 - 21 5,2-5,8 2,9-4,1 0 - 1	700 350	0,2-0,4 0,9-1,1
②a			with auxiliary spring							

ca.50	1000	12,0	without auxiliary spring	ca.20	250	5,5	980	0
	1020	9,5			150	19 - 21	800	0,5-0,7
	1050	4,5			250	5,2-5,8	350	0,9-1,1
	1030	5,5-8,0	with auxiliary spring		350	2,9-4,1		
	1080	2,5-3,2			530	0 - 1		
	1150	0 - 1						

BOSCH

Geschäftsbereich KM Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en Republique Federale d'Allemagne par Robert Bosch GmbH

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation ROV Control-rod stop RO	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7
SDM 100 W6 - 70 PS -	Pe S 2268 *	524D **	DLA 150 S 501			
950	41,0 - 43,0	970	700 40,5 - 43,5 500 42,0 - 45,0		100	ca. 20 mmRW
SDM 100 W6 - 75 PS -	Pe S2268 U *	524D **	.. S 501			
950	45,0 - 47,0	970	700 46,0 - 49,0 500 47,0 - 50,0		100	ca. 20 mmRW
SDM 104 W6 - 80 PS -	Pe S2268Z *	524D **	.. S 501			
950	48,0 - 50,0	970	700 51,5 - 54,5 500 50,5 - 53,5		100	ca. 20 mmRW
SDM 106 W6 - 90 PS -	Pe S2268Z *	524D **	.. S 501			
950	57,0 - 59,0	970	700 62,0 - 65,0 500 55,5 - 58,5		100	ca. 20 mmRW
SDM 108 W6 - 100 PS -	Pe S2268 *	561D **	.. S 501			
1000	66,0 - 68,0	1020	700 66,0 - 69,0 500 59,0 - 62,0		100	ca. 20 mmRW
SDM 110 W6 - 110 PS -	Pe S2268Z *	561D **	.. S 501			
1000	76,0 - 78,0	1020	700 77,5 - 80,5 500 68,5 - 71,5		100	ca. 20 mmRW
SDM 104 W6 - 80 PS -	Pe S2268W *	524 D **	.. S 476			
950	46,5 - 48,5	970	700 47,0 - 50,0 500 47,5 - 50,5		100	ca. 20 mmRW
SDM 106 W6 - 90 PS -	Pe S 2268V *	524D **	.. S 475			
950	53,5 - 55,5	970	700 61,5 - 64,5 500 54,5 - 57,5		100	ca. 20 mmRW
SDM 108 W6 - 100 PS -	Pe S2268Y *	561D **	.. S 475			
1000	59,0 - 61,0	1020	700 61,5 - 64,5 500 57,5 - 60,5		100	ca. 20 mmRW
SDM 110 W6 - 110 PS -	Pe S2268X *	561 D **	.. S 475			
1000	67,5 - 69,5	1020	700 73,5 - 76,5 500 66,0 - 69,0		100	ca. 20mm RW

* with governors

** and nozzle

En

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 HAN 10,2 b
Edition 8.69

En

PE 6 A 90 C 320 RS2123	EP/RSV 250-750 A4B228D	(1)	supersedes	3.66
	EP/RSV 250-900 A4B227D	(2)	company	Hanomag
	B234D		engine	D 961 ..
	EP/RSV 250-900 A4B264D	(3)		
	B278D			

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	5,8 - 6,4	0,4			
	6	2,3 - 3,1				
	15	14,3 - 15,5				
200	9	3,8 - 4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV 250-750 A 4 B 228 DR (1)

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 44	750	16	without auxiliary spring			ca. 22	250	5,5	730	0
	790	10					100	19 - 21	700	0 - 0,2
	820	5					250	5,2-5,8	650	0,4-0,6
	800	7,0-9,8	with auxiliary spring				300	4,2-4,8	600	0,8-1,0
	820	4,1-6,8					400	0,6-3,0	550	0,8-1,0
	870	1,1-3,1					500	1,0		
	930	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40°C (104°F)		Note changed to)							
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
730	85,0 - 87,0	760-780		600	91,0 - 94,0				
				500	92,0 - 95,0				
									./.

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Testoil-ISO 4113

F3

F3

B. Governor Settings

EP/RSV 250-900 A 4 B 227 DR; 234 DR (2)

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control		
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	
ca.56	900	16	without auxiliary spring			ca.25	250	7	880	0	
	950	11					100	19 - 21	800	0,7-0,9	
	980	7					250	6,7-7,3	500	1,3-1,5	
	970	6,0 - 10	with auxiliary spring				370	5,3-6,1			
	1000	3,9 - 6,0					430	1,3-4,2			
	1040	1,4 - 4,0					600	0 - 1			
2a	1130	0,3 - 1,0									

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
880	85,5 - 87,5	910 - 920	700 500	95,2 - 98,2 95,0 - 98,0					

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

EP/RSV 250-750 A 4 B 264 D, 278 D (3)

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel:	Control rod travel				Control-lever deflection in degrees	rev/min	Control rod travel	rev/min	Control rod travel
1	mm	mm rev/min	4	5	6	7	8	mm	10	11
ca.56	900	16,0	without auxiliary spring			ca.25	250	7,0	880	0
	950	11,6					100	19 - 21	700	0,1-0,3
	980	7,6					250	6,7-7,3	500	0,4-0,6
	960	8,8-11,8	with auxiliary spring				400	2,7-4,8		
	1000	4,6- 6,6					600	0 - 1		
	1150	0 - 1								
2a										

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
880	83,5 - 85,5	910 - 920	700 500	80,5 - 83,5 79,0 - 82,0					

Checking values in brackets

* 1 mm less control rod travel than col. 2

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MB 8,7 c

2. Edition

En

PE 6 A 90 C 410	RS2124X,Y	RQ 300/1275 AB658D	(1)	supersedes	5.72
	RS2124	RQ 450/1275 AB658D	(2)	company:	Daimler-Benz
.. D..	RS2124Z,Y	RQ 300/1125 AB713D	(3)	engine:	OM 360 ..
	RS2124Z,Y	RQ 300/1275 AB713D	(4)		
	RS2124	RQ 450/1275 AB713D	(5)		
	RS2124Z,Y	RQ 300/1275 AB812D	(6),RQ 300/1250 (6)		

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke RS2124 RQ 450/1250 AB812D (7)
2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery "C" u. "D" cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	6,4 - 6,9	0,4			
	6	2,8 - 3,8				
	15	13,8 - 15,3				
200	9	3,7 - 4,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQ 300/1275 AB 658 D (1)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,7-16,3	600	16,0	1290	14,3-14,7	560	0	200	6,6-8,1	750	15,8-16,0
				1320	9,5-13,4			300	4,1-6,3	900	15,4-15,6
				1350	3,4-10,5			400	0,5-2,8		
				1380	0 - 7,4			460	0	1100	14,8-15,0
				1440	0						
At n = 1300 governor must break away by 0.5 - 1.5 mm from full load!											

Torque-control travel
on flyweight assembly dimension a = 0,4 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1250	79,0 - 81,0	450		1000	77,5 - 80,5	100	ca. 16mmRW
				800	79,5 - 82,5		
				500	71,5 - 74,5		
(increase by ± 1,0 cm ³ !)							

Checking values in brackets

11.73

F5

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

B. Governor Settings

450/1275 AB658D (2)

VDT-WPP 001/4 MB 8,7 c

2

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
700	15,7-16,3	700	16,0	1300 1330 1360 1420	14,4-14,7 7,0-12,5 0 - 8,6 0	670	0	380 450 500 570	6,5-8,1 3,8-6,3 1,1-4,1 0	850 1000 1150	15,8-16,0 15,3-15,6 14,7-15,0

Torque-control travel on flyweight assembly dimension a = 0,4 mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7
(2) 1250	76,5-78,5	700		1000 700	75,0 - 78,0 75,0 - 78,0	100	ca. 16 mm RW
At n = 1290-1310 governor must break away by 1.0 mm from full load!							

Checking values in brackets

B. Governor Settings

300/1125 AB713S (3)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1050	15,1-15,7	1050	15,4	1130 1180 1230 1310	15,0-15,4 8,0-13,0 0 - 8,0 0	570	0	200 300 400	7,8-8,1 4,7-7,1 0,9-3,6	600 700	15,8-16,0 15,4-15,6

Torque-control travel on flyweight assembly dimension a = 0,2 mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7
(3) (3-Z) (3-Y)	1100 1100 1100	83,5 - 85,5 77,0 - 79,0 71,5 - 73,5	450 450 450	700 700 700 500	86,0 - 89,0 76,5 - 79,5 78,0 - 81,0 69,0 - 72,0 68,0 - 71,0 61,0 - 64,0	100 100 100	ca. 16 mm RW ca. 16 mm RW ca. 16 mm RW
At n = 1140-1160 governor must break away by 1.0 mm from full load!							

En Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

300/1275AB713(4) VDT-WPP 001/4 MB 8,7 c

-3-

(2)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1250	15,1-15,7	1250	15,4	1280 1330 1370 1440	15,1-15,4 7,6-12,8 0 - 8,6 0	560	0	200 300 400 460	6,5-8,1 4,1-6,3 0,3-2,7 0	600 680	15,7-15,9 15,4-15,6

Torque-control travel on flyweight assembly dimension a = 0,2 mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
(4) 1250	84,5 - 86,5	450		1000 700 500	83,0 - 86,0 84,0 - 87,0 74,5 - 77,5	100	ca. 16 mm RW
(4-Z) 1250	78,5 - 80,5	450		1000 700 500	76,0 - 79,0 78,0 - 81,0 69,0 - 72,0	100	ca. 16 mm RW
(4-Y) 1250	73,0 - 75,0	450		1000 700 500	69,0 - 72,0 68,0 - 71,0 61,0 - 64,0	100	ca. 16 mm RW

Checking values in brackets

At n = 1290-1310 governor must break away by 1.0 mm from full load!

B. Governor Settings

450/1275 AB713 D (5)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
700	15,7-16,3	700	16,0	1290 1320 1360 1420	15,0-15,4 9,0-14,0 0 - 9,0 0	670	0	380 450 500 570	6,5-8,1 3,8-6,3 1,1-4,1 0	770 850	15,8-16,0 14,4-14,7

Torque-control travel on flyweight assembly dimension a = 0,2 mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
(5) 1250	84,5 - 86,5	700		1000 700	83,0 - 86,0 84,0 - 87,0	100	ca. 16 mm RW

At n = 1290-1310 governor must break away by 1.0 mm from full load!

En Checking values in brackets

Testoil-ISO 4113

F7

f7

B. Governor Settings

300/1275 AB812D
300/1250 AB812D

(6) VDT-WPP 001/4 ME 8,7c

-4-

(2)

300/
1275-

-300/
1250-

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min	mm	rev/min	mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,7-16,3	600	16,0	1280	15,7-16,0	560	0	200	6,5-8,1	-	-
				1340	7,6-11,8			300	4,1-6,3		
				1380	0 - 7,5			400	0,3-2,7		
				1440	0			460	0		
600	15,7-16,3	600	16,0	1270	15,7-16,0	560	0	200	6,5-8,0	-	-
				1320	9,4-13,6			300	4,2-6,3		
				1380	0 - 8,1			400	0,4-2,9		

Torque-control travel
on flyweight assembly dimension a

0

1470

0

Speed regulation At

460

0

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	Control rod travel mm
(6)							
1250	85,5 - 87,5		800	800	83,5 - 86,5	100	ca. 16mm RW
(6-Z)							
1250	84,0 - 86,0		800	800	80,0 - 83,0	100	ca. 16mm RW
(6-Y)							
1250	81,0 - 83,0		800	800	76,0 - 79,0	100	ca. 16 mm RW

** At n = 1290-1310 governor must break away by 1.0 mm from full load!

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

450/1250 AB812D (7)

Checking of slider PRG check		Full load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min	mm	rev/min	mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,7-16,3	600	16,0	1270	15,6-16,0	650	0	380	6,0-8,1	-	-
				1300	10 -15			420	4,4-7,0		
				1340	0 -10			500	0 -3,2		
				1410	0			550	0		

Torque-control travel
on flyweight assembly dimension a

0

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104 F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	Control rod travel mm
(7)							
1250	85,5 - 87,5		800	800	83,5 - 86,5	100	16 mm RW
**							

Increase by $\pm 0,5 \text{ cm}^3$!

En Checking values in brackets

F8

①

Test Specifications

Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 MB 8,7 d

2. Edition

En

PE 6 A 90 C 410 RS 2124 RQV 300-1125 AB720D, 721D, 735D (1)
 (D) RS 2124 RQV 300-1275 AB720D, 721D (2)
 RS 2124 RQV 300-1250 AB814D, 815D (3)

supersedes 12.71
 company: Daimler-Benz
 engine: OM 360

Pump 2124 with EP/RSV governor MB 8.7 g - h

Series version (1)
 Special version (2...3)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	6,4 - 6,9	0,4			
200	6 15 9	2,8 - 3,8 13,8 - 15,3 3,7 - 4,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQV 300-1125 AB 720D, 721D, 735D (1)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 68	1125 1150 1200 1300 1390	15,0-17,6 13,0-16,2 8,3-13,2 0 - 6,3 0				ca. 12	150 250 400 500	6,7-8,0 5,7-7,4 3,2-5,1 1,0-3,4	1125 1100 500	8,3 0 0,4-0,6

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery Idle switching point ⑥	Torque-control travel ⑤		
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
(1) 1100	83,5-85,5	1150-1160*	700 500	86,0 - 95,0 76,5 - 79,5	100	ca. 12	1125 720D 700	/ /..721D 735D
					Change-over point 150-180 U/min			

Checking values in brackets

Increase by ± 1,0 cm³!

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

F9

BOSCH

Geschäftsbereich KM, Kundendienst, Kfz-Ausrüstung.
 C by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50. Printed in the Federal Republic of Germany.
 Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

B. Governor Settings

RQV 300-1275 AB720D, 721D (2)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1275	15,0-17,7				ca. 12	100	7,0-8,0	1275	8,3
	1350	9,7-13,8					250	5,7-7,4	1250	0
	1400	5,6-11,0					400	3,4-5,0		
	1470	0-6,0					550	1,2-2,8	500	0,4-0,6
	1580	0					640	0		
						(3a)				

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Intermediate speed	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
(2) 1250	84,5-86,5	1300-1310*	1000	83,0-86,0	100	ca. 12		700	
			700	84,0-87,0					

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

RQV 300-1250 AB814D, 815D (3)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 67	1250	15,0-18,0				ca. 12	200	6,3-8,0	1250	8,1
	1340	8,3-13,4					400	3,4-5,0		
	1400	3,8-10,0					600	0-1,2		
	1440	0-7,7					640	0		
	1560	0								
						(3a)				

Torque control travel a = 0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Intermediate speed	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
(3) 1250	85,5-87,5	1300-1310*	800	82,0-85,0	100	ca. 12		650/ 700/	.814D .815D

Checking values in brackets

* 1 mm less control rod travel than col 2

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 MAN 7,2 d

2. Edition

En

PES 6 A 85 C 412 RS 2104 RQV 250-1250 AA549DL (MAN-Nr.274)

supersedes 12.66

.. RS 2139 ..549DL, ..753DL (1)

company: M A N

PES 6 A 85 C 412 RS 2139 RQV 250-1250 AB 603 L (2)

D 0836 HM.. (1)

PES 6 A 85 C 412 RS 2139 RQV 250-1250 AB 610DL (3)

D 0836 HM70A (2)

.. 753DL

71A

D 0846 HMN..

HM.. (3)

HMX

D
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery "C" cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery "D" cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,9 - 5,5	0,4	9	4,1 - 4,5	
	6	1,3 - 2,1		6	0,6 - 1,4	
	15	12,4 - 13,1		-	- - -	
200	9	3,9 - 4,4		9	1,4 - 2,2	

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 65	1250	15,0-18,0	-	-	-	ca. 10	100	7,6-8,2	1250	8,2
	1280	12,0-15,8					250	5,0-7,0		
	1340	5,8-11,0					400	3,4-3,8		
	1400	0 - 6,4					600	1,8-3,2	*	
	1480	0					810	0		
						3a				

*

- (603L)

1,0 mm (549DL, 753DL) : 1200 = 0 mm RW
500 = 0,9-1,1 mm RW

0,8 mm (610DL) : 1200 = 0 mm RW
500 = 0,7-0,9 mm RW

8.73

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

F11

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation RQV Control-rod stop RQ	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes
1	2	3	4	5	6	7

(1)	Pe 2104, 2139 *	549DL, 753DL:				
1250	71,5 - 73,5 70,5 - 74,5	1260-1270	700	70,5 - 73,5 69,5 - 74,5	100 ca. 18,9 250 5,9	
					★★	

(2)	Pe 2139 *	603L:				
1250	74,5 - 76,5 73,5 - 77,5	1260-1270	900	72,0 - 75,0 71,0 - 76,0	100 ca. 18,9 250 5,9	
					★★	

(3)	Pe 2139 *	610DL, 851DL:				
1250	69,5 - 71,5 68,5 - 72,5	1260-1270	800	71,0 - 74,0 70,0 - 75,0	100 ca. 18,9 250 6,9	
			500	max. 69,5	★★	
					(→ 851 DL)	

* with governors

★★ Switching point
200-130 min⁻¹
In line with customer
data (not for governor
610 DL)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 HEN 6,5 b

Edition 5.71

En

PE 5 A 90 C 412 RS 2247

PE 4 A 90 C 412 RS 2248*

RQ 250/1300 AB 745 DL

supersedes

company: Henschel

engine: 552 (5R1112-...)
542 (4R1112-...)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	9	5,8 - 6,3	0,4			
1000	6 15	2,5 - 3,4 13,5 - 14,8				
200	9	3,2 - 4,1				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Test specifications Control rod travel mm 5		Control rod travel mm 8		Test specifications Control rod travel mm 10		Control rod travel mm 12	
650	15,7-16,4	650	16,0	1320	14,5-14,8	630	0	200	6,2-8,0	800	15,9-16,0
				1350	10,7-14,0			300	4,5-6,6		
				1420	0 - 7			400	1,9-4,2	1050	14,9-15,1
				1480	0			530	0		

Torque-control travel
on flyweight assembly dimension a = 0,35 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2		3a		cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7	
1300	83,5 - 85,5	600		700 500	86,5 - 89,5 78,5 - 81,5	100	ca. 17 mm RW
							./.

Checking values in brackets

Testoil-ISO 4113

F15

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

FAS

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation RQV Control-rod stop RQ	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7

"542"*

1300 81,0-83,0

600

700
50086,0 - 89,0
78,5 - 81,5

100

ca. 17 mm RW

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 PEN 4,7 c

Edition 6.65

En

PES 6 A 80 B 320 RS 535 EP/RSV 200-1250 A 1 A 330
RS 2012 B 330
RS 2082

supersedes 1.65
company Penta
engine TMD 47 B

Test with EFEP 35 C (B-line)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,3 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
	12	6,4 - 6,8	0,3			2,5 + 0,1* (max. 2,2-2,9)
1000	6 9	0,3 - 1,0 2,9 - 3,6				
200	9	1,5 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 70	1250	16	without auxiliary spring			ca. 25	200	6	1230	0
	1300	11					100	19 - 21	400	0
	1350	4,6					200	5,7-6,3	250	1,2 - 1,8
②a	1300	10 - 12	with auxiliary spring				300	2 - 4		
	1350	3 - 7					450	0 - 1		
	1400	0 - 3								
	1450	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑤ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤ ④a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min							
rev/min	cm ³ /1000 strokes			rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
900	51,5-53,5	1260-1280	200	4,5 - 8,5 dispersion max. 1,2*		* In the event of greater scatter, initial tension of valve spring is to be altered accordingly. More initial tension produces more delivery			

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 MWM 4,2 a
Edition 6.69

En

PES 4 A 75 B 410/3 RS 473z,y,x,w	EP/RSV300-1250A2A348 D	supersedes	7.60
PES 4 A 75 B 410/3 RS 407,z,y,x,w	A 58 D,A 345D,A348 D	company	MWM
PES 2 A 75 B 410/3 RS 477	A362 D	engine	AKD 412V
PES 4 A 75 B 410/3 RS 1057z,y,x,w	A385 D		KD 412V

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,45+0,1 mm (from BDC) RW 9

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,2 - 3,7				
	6	0,9 - 1,7				
	12	6,2 - 6,6				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 51	1250	16	without auxiliary spring			ca. 22	300	6	1200	0
	1340	9,7					100	19 - 21		
	1400	4,6					300	5,7-6,3	800	0,8-1,0
	1320	10 - 12					450	3 - 4,5	500	1,2-1,6
②a	1350	7 - 10	with auxiliary spring				600	0 - 2,4		
	1400	3,4-6,6					700	0 - 1		
	1500	0 - 2,5								
	1600	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational speed limit		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤ ④a Idle stop	
Test oil temp 40°C (104°F)		Note changed to 1 rev/min							
rev/min 1	cm ³ /1000 strokes 2	3	4	cm ³ /1000 strokes 5	6	rev/min 7	cm ³ /1000 strokes 8	rev/min 9	Control rod travel mm 10

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany,
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

F18

F18

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 KHD 19,0a

2. Edition

En

PE 12 A 90 B 520 RS 466 RQ 200/1150 AA 493 D (1)
 C 520 RS 2087 RQ 200/1150 AB 493 D (1)
 C 520 RS 2087Z RQ 200/1150 AB 493 D (2)
 C 520 RS 2087 RQ 200/1150 AB 784 D (3)

supersedes 2.69
 company: K H D
 engine: BF 12 L 714
 (340 PS-1,3)
 (310 PS- 2)

1 - 8 - 5 - 10 - 3 - 7 - 6 - 11 - 8 - 9 - 4 - 12 - 1
 0 -15 -60 - 75 -120-135-180-195-240-255-300-315-360°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,9 - 6,4				
	6	1,4 - 2,2				
	15	14,3 -15,8				
200	9	3,9 - 4,9				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

RQ .. 493 D (1,2)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
PRG check		Setting point		Test specifications		Setting point		Test specifications		Torque control	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
1130	13,1-13,8	1130	13,4	1150	12,5-13,5	440	0	100	6 - 8	450	15,6-16
				1160	9,8-13,5			200	3,3-5,8	600	15,3-15,6
				1180	0,4-11,7			300	0 - 2	800	14,7-15
				1200	0 - 8,4			340	0	1000	13,9-14,2
				1230	0 - 2,6						
				1250	0						

Torque-control travel
on flyweight assembly dimension a = 0,8 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3		rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	Control rod travel cm ³ /1000 strokes/mm 7
1130	92,0 - 94,0	600		600 1000	99,5 -102,5 97,5 -100,5	100	mind. 18 mm RW
							./.

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

RQ .. 784 D (3)

KHD 19,0 a

-2-

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
1100	13,5-14,3	1100	13,9	1150 1180 1200 1250	13,7-13,9 4,5-12,0 0 - 9 0	430	0	100 200 300 330	6,0-8,1 3,5-6,0 0 -1,8 0	400 800 1000	15,8-16,2 14,7-15,0 13,9-14,2

Torque-control travel
on flyweight assembly dimension a = 0,65 mm

Speed regulation At

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /- 1000 strokes 2	rev/min 3	rev/min 4	cm ³ /- 1000 strokes 5	rev/min 6	Control rod travel cm ³ /1000 strokes / mm 7
1130	86,0 - 88,0	600	1000 600	91,0 - 94,0 94,5 - 97,5	100	ca. 16 mm RW

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation At

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /- 1000 strokes 2	rev/min 3	rev/min 4	cm ³ /- 1000 strokes 5	rev/min 6	Control rod travel cm ³ /1000 strokes / mm 7
1150	92,0 - 94,0	500	1000 500	97,0 - 100,0 99,0 - 102,0	100	ca. 18 mm RW

Checking values in brackets

①

Test Specifications

Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 KHD 19,0 b

Edition 2.69

En

PE 12 A 90 B 520 RS 466
PE 12 A 90 C 520 RS2087
RS2087
RS2087Z

RQV 250-750 A351, 480 (1)
RQV 300-750 AA 480 (1)
RQV200/750-1150AA559D (2)
RQV... AA559D (3)

supersedes 11.66
company K H D
engine B/A 12 L 714
(210PS - 1)
BF 12 L 714)
(340 PS - 2)
(310 PS - 3)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,9 - 6,4				
	6 15	1,4 - 2,2 14,3 - 15,8				
200	9	3,9 - 4,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQV 250-750 (1)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca .65	750	14 - 17,4				ca .10	150	7,4-8		
	760	13 - 16,2					200	6,2-8		
	800	4,8- 10,5					300	3,4-4,6		
	840	0 - 5,2					400	1,6-3,2		
	880	0					520	0		
						③a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de very Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed rev/min ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
730	66 - 68	760 - 770						./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

Geschäftsbereich KM Kundendienst, Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

G1

B. Governor Settings

RQV 300-750 (1)

KHD 19,0 b

-2-

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
66±1,5	750 760 800 840 880	15 - 18 13 - 16,8 6 - 12 0 - 6 0				10±1,5	250 300 350 450 540	7,2- 8 5,4-7,6 3 -5,2 1,3-2,5 0		
						(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1130	95,5-97,5	1160-1170	800 600	104,0-108,0 97,5-101,5					

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

RQV 200/750-1150 AA 559 DR (2)

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68	1150 1200 1250 1300 1380	15,0-18,2 10,0-14,5 4,5-10,7 0 - 6,5 0	ca. 43	650 750 800 900 970	11,5-12,5 5,0-11,0 2,0- 5,1 0 - 1,9 0	ca. 10	100 200 300 500 700 780	6,3-8,0 4,9-7,0 3,6-4,5 3,6-4,0 3,6-4,0 0	1050 1000 900 800	0 0,4-0,6 0,7-0,9 0,9-1,1
						(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1130	86,0-88,0	1170	1000 600	91,0-94,0 94,5-97,5					

Checking values in brackets

* 1 mm less control rod travel than col 2

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MAN 9,7 b

Edition 3.67

En

PES 6 A 85 B 412 RS 461
RS 2046

RQ 200/1050 A 367 D*
A 451 D
A 452 D
AA488 D

supersedes 2.64
company: M A N
engine: D 2146 MT

MAN-Nr.326

* (see BHP) 101/9 EP

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,5 ± 0,1

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,9 - 5,5	0,4			
	6	1,3 - 2,1				
	15	12,2 - 13,1				
200	9	3,9 - 4,4				

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

..A 367 D, --A 451 D

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4		Test specifications Control rod travel mm 5		rev/min 6		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications Control rod travel mm 9		rev/min 10		Torque control rev/min 11		Control rod travel mm 12	
1000		14,6-15,4		1000		15,0		1050		14,6-15,0		560		0		100		6,4-8,1		650		15,7-16,0	
								1080		9,0-14,0						200		5,2-7,2		800		15,1-15,6	
								1100		5,5-11,6						300		3,0-5,3					
								1130		0 - 8						400		0 - 2,2		900		15,0-15,2	
								1190		0						460		0					

Torque-control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6		Control rod travel mm 7	
(..RS 461 + ..RS 2046)									
1030	120.0-123.0	700		700	119,0-123,0				
				1050	119,0-122,0				

Checking values in brackets

G3

BOSCH

Geschäftsbereich KH Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

63

B. Governor Settings

..AA 452 D, .. AA 488D

Checking of slider		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min	Control rod travel	Setting point	Control rod travel	Test specifications	Control rod travel	Setting point	Control rod travel	Test specifications	Control rod travel	rev/min	Control rod travel
	mm										
1	2	3	4	5	6	7	8	9	10	11	12

1000	14,2-15,0	1000	14,6	1050	14,4-14,6	550	0	150	6,0-8,0	450	16,0-16,6
				1080	9,4-13,6			250	4,2-6,4	700	15,6-15,9
				1100	5,6-11,4			350	1,6-4,0	900	14,7-15,0
				1140	0 - 6,5			450	0		
				1190	0						

Torque-control travel on flyweight assembly dimension a = 0,45 mm Speed regulation At 1 mm less control rod travel

--	--	--	--	--	--	--	--	--	--	--	--

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

--	--	--	--	--	--	--	--	--	--	--	--

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

--	--	--	--	--	--	--	--	--	--	--	--

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

--	--	--	--	--	--	--	--	--	--	--	--

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

En

Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MAN 7,2a
(7,2b)

Edition 2.64

En

PES 6 A 80 B 412 RS 460
RS 2051RQ 250/1250 A 362,366
MAN-Nr. 270 438,487supersedes 10.62
company MAN
engine D 0836 M1
M2

Cam sequence 1-2-4-6-5-3 60°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,45 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,3			
	6	1,2 - 2,0				
	15	9,8 - 11,2				
200	9	2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		Torque control rev/min 11	
	Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		rev/min 9		Control rod travel mm 12
600	15,6-16,4	600	16	1250 1300 1350 1420	15,6- 16 10 - 14,6 0 - 8,5 0			100 200 300 400 460	6,8-8,1 5,5-7,5 3,3-5,5 0 - 2,5 0	-	-

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm ³ /-1000 strokes 2				cm ³ /-1000 strokes 5		cm ³ /1000 strokes/mm 7
1250	68,5 - 70,5	1250				250	RW 6,0 min

Checking values in brackets

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

Test Specifications Fuel Injection Pumps **(1A)** and Governors

40

VDT-WPP 001/4 MWM 6,2a
Edition 8.89

En

PE6A75B 410/3 LS 434Z,Y,X EP/RSV 300...1250 A2A345D
PE8A75B 410/3 LS 435X,Y,Z A345 D
PE6A75B 412/3 LS 479 A 348 D,A385D
PE8AM75B412L 16 A345D

supersedes 7.60
company M W M
engine AKD 412 SV

See page 2!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,45+0,1 mm (from BDC) bei RW12

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,3 - 4,7	0,3			
	6	1,4 - 2,2				
	21	10,4 - 12,9				
200	6	0,6 - 1,3				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 51	1250	16	without auxiliary spring			ca. 22	300	6		
	1340	9,7					100	19 - 21	1200	0
	1400	4,6					300	5,7 - 6,3	800	0,8-1,0
	1320	10 - 12					450	3 - 4,5	500	1,2-1,6
	1350	7 - 10	with auxiliary spring				600	0 - 2,4		
2a	1400	3,4-6,6					700	0 - 1		
	1500	0 - 2,5								
	1600	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to							
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

AKD 412 SV (6 cyl.)

Engine/pump speed min-1	Engine output bhp	Full-load delivery at engine speed (min-1) and with delivery Index Column 1-2 Column 4 ... 5 Co. 3 **	Full-load delivery on test bench at engine speed (min-1) and with delivery in cm ³ /1000 strokes***						
			Column 1-2		Column 4 ... 5		Co. 3 **		
1000/500	35	y	980	50	800	51	500	50	510
	37,5	y	980	50	800	51	500	51	510
1200/600	42	z	980	47	800	48	500	47	610
	45	z	980	47	800	48	500	47	610
1500/750	52	z	980	47	800	48	500	47	760
	57	z	980	47	800	48	500	47	760
	63	x	980	54	800	55	500	54	760
1800/900	63	y	980	50	800	51	500	50	910
	67	y	980	50	800	51	500	50	910
	75	x	980	54	800	55	500	54	910
2000/1000	69	y	980	50	800	51	500	50	1010
	75	y	980	50	800	51	500	50	1010
	84	x	980	54	800	55	500	54	1010
2200/1100	82	y	980	50	800	51	500	50	1110
	90	x	980	54	800	55	500	54	1110
2500/1250	105	*	1230	58	800	60	500	59	1260

AKD 412 AV (8 Cyl.) PE P5 9 A...S 435

1000/500	46,5	y	980	50	800	51	500	50	510
	50	y	980	50	800	51	500	50	510
1200/600	56	z	980	47	800	48	500	47	610
	60	z	980	47	800	48	500	47	610
1500/750	70	z	980	47	800	48	500	47	760
	76	z	980	47	800	48	500	47	760
	84	x	980	54	800	55	500	54	760
1800/900	84	y	980	50	800	51	500	50	910
	90	y	980	50	800	51	500	50	910
	100	x	980	54	800	55	500	54	910
2000/1000	92	y	980	50	800	51	500	50	1010
	100	y	980	50	800	51	500	50	1010
	112	x	980	54	800	55	500	54	1010
2200/1100	110	y	980	50	800	51	500	50	1110
	120	x	980	54	800	55	500	54	1110
2500/1250	140	*	1230	58	800	60	500	59	1260

* No type-designation index - basic version as on front page

** Nameplate of governor altered to - or pay attention to nameplate of engine!

*** Tolerance, Column 1...2 = ± 1.0 cm³/1000 strokes; column 4...5 = 1.5 cm³

In cases of doubt, full-load delivery can be determined from output, engine speed (nameplate) and above table.

En

Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 BOS 5,4 f

Edition 10.64

En

PE 6 65 B 321 RS 399 RQ 200/1300 A 293 D

supersedes 15.5.59

company: Büssing

engine: S 5

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	5,7 - 6,2	0,3			
	6	1,4 - 2,1				
200	6	0,8 - 1,6				

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Test specifications Control rod travel mm 5		Control rod travel mm 8		Test specifications Control rod travel mm 10		Control rod travel mm 12	
1250	14-14,8	1250	14,4	1320 1340 1360 1380 1430	14 - 14,4 8 - 14 1 - 11 0 - 8 0	430	0	100 150 200 280 330	6 - 8,1 5 - 7,2 3,4-6 0 - 3 0	800 1000 1150	15,8-16 15 - 15,4 14,4-14,7

Torque-control travel on flyweight assembly dimension a = 0,5 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7	
1300	54,7-56,7	400		500 900	57,5 - 60,5 59,5 - 62,5		

Checking values in brackets

G8

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 BOS 10,9 i
10,9 k)

Edition 10.64

En

PE 6 A 90 B 312 LS 314

EP/RSV 200-1000 A1 A 114 D

supersedes
company
engine

5.61
Büssing
U 11/200

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	10,3 - 10,7	0,4			
	9	6,0 - 6,5				
200	9	3,9 - 4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed			4 Lower rated speed Control lever deflection in degrees rev/min			3 Torque control Control rod travel rev/min mm	
Control rod travel mm 2	Control rod travel mm rev/min 3		4	5	6	7	8	9	10	11
ca. 53	1000 16 1050 11 1080 6,6		without auxiliary spring			ca. 22	200 6 100 19 - 21 200 5,7-6,3 300 3,8- 5 400 0 -2,2 550 0 - 1		980 0 700 0,1-0,3 300 0,2-0,4	
2a	1050 9 - 12 1100 3,7- 6 1150 0,5- 3,5 1250 0 - 1									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min cm ³ /1000 strokes 1 2		6 Rotational speed limit Note changed to) rev/min 3		3a Fuel delivery characteristics rev/min cm ³ /1000 strokes 4 5		Starting fuel delivery Idle rev/min cm ³ /1000 strokes 6 7		4a Idle stop Control rod travel rev/min mm 8 9	
1000	118,5-120,5	1030-1040		500 116,5-120,5 700 115,5-119,5 900 119,0-123,0		100 mind. 18mm		RW	

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany,
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Testoil-ISO 4113

G11

611

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 VOL 4,7 c

Edition 4.65

En

PES 6 A 80 B 320 RS 535 RQV 200-1400 A 391/2
RS 2012 A 388/2
RS 2082

supersedes 4.64
company: Volvo
engine: TD 47 B

Test with EFEP 35 C (B-line)

In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,3 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,4 - 6,8	0,3			2,5 + 0,1 (max. 2,2-2,9)
	6	0,3 - 1,0				
	9	2,9 - 3,6				
200	9	1,5 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
68±1,5	1400	18 - 21					100	6,5- 8		
	1450	14,4-18,4					200	4,5- 6		
	1500	10,5-15,6					300	3 -3,8		
	1600	2 - 9,5				10±1,5	400	2,2-3,4		
	1650	0 - 6					600	0,7-1		
	1750	0					810	0		
						3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
900	51,5-53,5	1410-1430	200	4,5 - 8,5 dispersion max.1,2	100	mind. 12,9			

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

BOSCH

Geschäftsbereich KM Kundendienst Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

GAS

G15

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 BÜS 6,8a

Edition 3.70

Ed

PE 6 A 80 B 312 LS 350

RQ 200/1200 A 316 D

LS 2044, Z, Y

A 499 D ./. .

supersedes 10.66

company: **Büssing**

engine. U 7 -145

150 "Z"
132 "Y"

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15 + 0,1$ mm (from 8DC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	7,3 - 8,0	0,3			
	6	1,2 - 2,0				
200	6	0,1 - 0,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

..A 316 D

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control			
①		Setting point		Test specifications		④		Setting point		⑤		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12		
1150	14,1-14,9	1150	14,5	1250	14,3-14,5			100	6,2-8,1	350	16,0-16,4		
				1260	11,0-14,5				200		3,7-8,0	700	15,7-16,0
				1280	4,0-12,0				300		0 -1,4	800	15,4-15,7
				1300	0 - 8,6				320		0	900	15,0-15,4
				1350	0								

Torque-control travel on flyweight assembly dimension a = 0,45

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /~1000 strokes 2	rev/min 3	rev/min 4	cm ³ /~1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1200	74,5 - 76,5	700	700 500	73,5 - 76,5 73,5 - 76,5		

Checking values in brackets

B. Governor Settings

..AB499DL

BOS 6,8g

-2-

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	15,7-16,3	550	16,0	1200	14,4-14,8	530	0	150	6,8-8,1	700	15,8-16,0
				1220	9,0-14,2			250	4,7-7,0	850	15,3-15,6
				1250	0 - 9,5			350	1,0-3,9	1000	14,8-15,0
				1310	0			430	0		

Torque-control travel
on flyweight assembly dimension a = 0,45 mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104 F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /- 1000 strokes 2	rev/min 3	rev/min 4	cm ³ /- 1000 strokes 5	rev/min 6	Control rod travel mm 7
1200	77,0 - 79,0	800	800	76,5 - 79,5	100	ca. 18 mm RW
			500	76,0 - 79,0		
1200	67,5 - 69,5	800	800	68,5 - 71,5	100	ca. 16 mm RW
			500	65,0 - 68,0		

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104 F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /- 1000 strokes 2	rev/min 3	rev/min 4	cm ³ /- 1000 strokes 5	rev/min 6	Control rod travel mm 7

En Checking values in brackets

621

G17

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 BOS 6,8h

Edition 10.64

En

PE 6 A 80 B 320 RS 350

RQ 200/1200 A 315 D

supersedes

1.5.61

company:

Büssing

engine:

Z 7

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	7,2 - 8,0	0,4			
	6	1,2 - 2,0				
200	6	0,1 - 0,8				

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4		Test specifications rev/min 6		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Control rod travel mm 10		Torque control rev/min 11		Control rod travel mm 12	
1150		14,6-15,4		1150		15		1250 1260 1280 1300 1360	14,7-15 12-15 6-12,5 0-9,5 0	420		0		100 200 300 320	6,2-8,1 3,7-6 0-1,5 0			350 700 800 900 1000	16-16,6 15,9-16 15,3-15,8 15-15,4 15-15,1		
Breakaway not before n = 1250																					

Torque-control travel on flyweight assembly dimension a =

0,3

mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6		Control rod travel mm 2		Control rod travel mm 5		Control rod travel mm 7	
1200	74,0 - 76,0	500		800 500	73,0 - 76,0 70,5 - 73,5								

Checking values in brackets

G18

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

618

Test Specifications Fuel Injection Pumps ② and Governors

PES 6 A 75 B 320 RS 347
RS 378
RS 2050

EP/MZ 60 A 106
A 107
A 134

supersedes 3.8.61
company: Volvo
engine: D 47 A

Check helix pitch 5 and 10 mm, pump with "B-lines"
(EFEP 35 C). Refer to page 2 for test sequence!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,8 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	12	3,7 - 4,0	0,2			2,8 (max. 2,4-3,0)
1000	6 9	0,1 - 0,5 0,8 - 1,6				
200	9	1,0 - 1,7				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Test specifications Control rod travel mm 5		Control rod travel mm 8		Test specifications Control rod travel mm 10		Control rod travel mm 12	
500-480		10		400		ca. 7		410 420 440 460		12,0-12,7 10,5-12,7 7,4-10,7 5,5- 8	

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2		cm ³ /1000 strokes 3a		cm ³ /1000 strokes 3b		cm ³ /1000 strokes/mm 7	
800		350 - 390		41,5 - 42,5		1200	
				200		Increase WS 9 - 13 Scatter max. 3	
				60		Increase WS approx. 9 Scatter max. 1	
						Starting fuel delivery 119-129	

Checking values in brackets

Testoil-ISO 4113

Sequence of full-load adjustment and governor testing

1. Section C), columns 1 ... 3 (Full-load adjustment)
2. Section C), columns 4 ... 6 Idle test; increase WG until stated quantity has been attained.
The initial tension of the valve spring is to be altered accordingly in the event of major scatter;
Auxiliary spring not positioned!
3. Section B), columns 2 ... 3 (Leak test)
4. Section B), columns 8 ... 9 (Governor test and setting of breakaway).
The breakaway 410...430 mm WG is to be set by fitting shims (max. 2.5 mm) beneath governor spring. Columns 4 and 5 are no longer to be tested after setting full-load delivery.
5. Section B), columns 6 ... 7 (Positioning of auxiliary spring)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 KAE 8,1 b
Edition 12.66

En

PES 6 A 85 B 410 RS 332 EP/RSV 250-1100 A1 A71D
PES 6 A 85 C 410/3RS2000 EP/RSV 250-1100 A1 A71D
PES 6 A 85 C 410 RS 2143 EP/RSV 250-1100 A1 B180DL
PES 6 A 90 C 410 RS 2161 EP/RSV 250-1100 A1 B452DL
(V 7732) (V8028 D)

supersedes
company Kaelble
engine M 215a -SL
M 215t-SL

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

8,5 Ø

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	6,5 - 7,0	0,4			
	6	2,3 - 3,1				
	15	14,0 - 14,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV ...A1 A71D, ...B 180 DL

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 64	1100	16,0	*			ca. 27	250	6,0	1080	0
	1150	12,0					100	19 - 21	800	0,3-0,5
	1200	6,5					250	5,7-6,3	650	0,6-0,8
②a	1170	8,0-11,2	**				400	2,0-4,0		
	1200	4,6- 8,2					600	0 - 1	350	0,7-0,9
	1250	1,5- 4,2								
	1350	0 - 1								

ca. 64	1100	16,0	ca. 27			250	6,0	1080	0
	1150	12,2	* without auxiliary spring			100	19 - 21	900	0,5-0,7
	1200	7,0				250	5,7-6,3	800	0,7-0,9
	1200	4,8-8,6	** with auxiliary spring			400	1,8-4,0		
	1230	1,6-4,2				600	0 - 1	350	0,7-0,9
	1350	0 - 1							

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15±0,1 mm (from BDC)

...(S 2161) 9 0
...(V 7732) 9 0

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,4 - 7,9	0,4			
	6	2,9 - 3,7				
	15	16,0 - 17,3				
200	6	1,1 - 2,0				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			4 Control-lever deflection in degrees 7		Lower rated speed rev/min 8		3 Torque control rev/min 10	
Control rod travel mm 2	Control rod travel mm rev/min 3							Control rod travel mm 9		Control rod travel mm 11	
2a											

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational-speed limit Note changed to) rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 Idle stop rev/min 8	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7		Control rod travel mm 9	

Checking values in brackets

* 1 mm less control rod travel than col 2

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4

HEN 9,3 c

Edition 3.65

En

PE 6 A 90 B 321 RS 331

RQ 300/1100 A 350 D

supersedes

8.62

RS 2004

AV 6686 D

company:

Henschel

A 397 D

engine:

514DCU

Change governor A350 D (a = 0.6) to
V6686 D (a = 1.0)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,9 - 6,4	0,4			
	6	2,3 - 3,1				
	15	14,2 - 15,5				
200	9	3,8 - 4,6				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

AV 6686 D

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4		Test specifications rev/min 6		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 10		Torque control rev/min 11		Control rod travel mm 12	
1050		12,8-13,4		1050		13,1		1120 1140 1150 1160 1210	12,5-12,9 6 -12 3 -10 0 -8,6 0	500		0		250 300 350 400	6,5-8,1 4 -6,8 0,5-3,5 0	400 700 1000		15,8-16,6 14,6-15 13,2-13,6	

Torque-control travel on flyweight assembly dimension a = 1,0 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6		Control rod travel mm 7	
1080	80,0 - 82,0	400		700 400	87,0 - 90,0 94,0 - 97,0	100		mind. 16mm RW	

Checking values in brackets

G23

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

G23.

B. Governor Settings

A 350 D A 397 D

HEN 9,3 c

-2-

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1050	13,7-14,5	1050	14,1	1120 1130 1160 1210	13,9-14,1 10,2-14,1 0 - 9,2 0	500	0	200 300 400	7,3-8,1 4 -6,8 0	400 600 800	15,7-16,6 15 -15,4 14,1-14,5

Torque-control travel on flyweight assembly dimension a : 0,6 mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /- 1000 strokes	rev/min		rev/min	cm ³ /- 1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes / mm
1	2	3		4	5	6	7
1100	85,0 - 87,0	700		700 400	90,5 - 93,5 98,0 -102,0	100	mind. 16 mm RW

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12

Torque-control travel on flyweight assembly dimension a : mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /- 1000 strokes	rev/min		rev/min	cm ³ /- 1000 strokes	rev/min	Control rod travel cm ³ /1000 strokes / mm
1	2	3		4	5	6	7

En Checking values in brackets

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 REN 4,1 e
Edition 3.69

En

PE 4 A 75 B 321 RS 325

EP/RSV 250-1300 A 1 A 334

supersedes 10.68

company Henschel

engine 517 D 4 U

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,7 - 5,1	0,3			
	6 15	1,9 - 2,6 10,4 - 11,5				
200	6	0,9 - 1,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 72	1300 1350 1390	16 10 4	without auxiliary spring			ca. 26	250	6	1280	0
2a	1350 1400 1450 1500	8,5-11,2 2 - 5,5 0 - 2 0 - 1					100 250 350 450	19 - 21 5,7-6,3 1 - 3,5 0 - 1	400 290	0 1,2-1,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery idle		5 4a Idle stop	
Test oil temp 40°C (104 F)		Note changed to)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1280	66,0-68,0	1310-1330						250	6

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

Testoil-ISO 4113

H1

HA

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 MAN 8,3 i
Edition 5.72

En

PE 6 A 70 B 412 RS 159 RQ 150/ 1050 A (A) 128D (1)
C 412 RS 1058 RQ 200-1050 A 210 D (2)
B 412 RS 159 RQV 200-1050 AB732 D (3)
C 412 RS 1058 RQV 200-1000 AB732 D (3)

supersedes 3.64
company: M A N
engine: D 1246 ..
M3 - (1)
M - (2)
M - (3)
MV3 Faun - (3)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,3 \pm 0,05$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,6 - 4,8	0,4			
	6 12	2,0 - 2,6 6,9 - 7,5		*		
200	6	1,1 - 1,7				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		rev/min 9		Control rod travel mm 12	
550	15,7-16,3	550	16,0	1050	14,5-14,7	480	0	100	7,0-8,5	400	16,0-16,4
				1080	7,0-13,0			200	4,8-7,0	600	15,9-16,0
				1120	0 - 7,3			300	1,4-4,0	950	14,6-14,7
				1180	0			380	0		

Torque-control travel
on flyweight assembly dimension a = $0,4$ mm

Speed regulation: At

1 mm less control
rod travel

RQ 200/1050 ..

550	15,7-16,3	550	16,0	1050	14,6-14,8	520	0	100	5,5-7,5	400	16,0-16,6
				1080	7,0-13,2			200	4,0-6,0	600	15,9-16,0
				1120	0 - 8,0			400	0 - 0,6	950	14,7-14,8
				1180	0			420	0		

* port closing difference between control-rod travel 12 mm and 21
2.5-3° camshaft.

Testoil-ISO 4113

H5

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

H5

B. Governor Settings

RQV ..

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
200-1050 ca. 65	A210D (2) 1050 1100 1180 1250	15,0-18,0 8,7-13,4 0 - 6,2 0	-	-	-	ca. 10	100 250 300 640	6,8-8,0 3,5-5,6 1,2-2,6 0	1000 850 700	0 0,5-0,7 0,9-1,1
						(3a)				

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
D 1246	M3 - Pe	.S159, 1058 **		128D - MAN-Nr.	51	(0,9-1,9)		
980	80,0-82,0	700 (RQ)	700	210 D - MAN-Nr.	51	ca. 21 mmRW		
			450	80,0-85,0 80,5-83,5	100			

Checking values in brackets

** with governors

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
200-1000 ca. 66	AB732D (3) 1000 1050 1100 1150 1190	15,0-18,0 9,1-13,8 2,7- 9,4 0 - 4,5 0				ca. 10	100 200 300 500 650	7,3-8,0 5,0-7,3 3,0-3,8 1,3-2,5 0	1000 500	0 0,9-1,1
						(3a)				

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
D 1246	MV3 - Faun	Pe ..S1058 **		732D (3)				
980	71,5-73,5	1020 (RQV)	700	70,5-73,5	100	mind. 20mmRW		
						Intermediate speed		

Checking values in brackets

* 1 mm less control rod travel than col. 2

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 KRU 7,2d
Edition 2.64

En

PE 5 A 85 B 320 LS 215,207 RQV 400-1700 A 294 D
496

supersedes 1.2.61
company Krupp
engine D 753M
D 459M

(see BMP) 120/4 EP

Set all cylinders to tappet clearance $0.3 + 0.05$ mm at TDC; mark end of delivery on cylinder 1 (drive end).
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,8 - 4,3				
	6	0,5 - 1,2				
	12	6,4 - 7,4				
200	9	1,1 - 1,9				
	21	10,6 - 12,9				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
66±1,5	1700	15 - 17,8				10±1,5	300	6,5-8	1700	0
	1800	10,5-14,5					400	4,5-6,8	1500	0,2-0,4
	1900	5 - 11					500	3 - 3,8	1200	0,6-0,8
	2000	0 - 7					700	1,2-2,8	800	0,9-1,1
	2200	0					900	0		

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1700	79,0-80,0	1705-1720	1500 1200	79,5 - 81,5 81,0 - 83,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 KRU 5,8 i
Edition 10. 66

En

PE 4 A 85 B 320 LS 207	EP/RSV 400-1900 A0 A101	(1)
PE 4 A 85 B 320 LS 207Z	EP/RSV 400-1700 A2 A110	(2)
PE 8 A 85 B 420 RS 459	EP/RSV 400-1700 A2 A110	(2)
PE 5 A 85 B 320 LS 496	EP/RSV 400-1700 A2 A110	(2)
PE 8 A 85 C 420 RS 2068	EP/RSV 400-1799 A2B110R	(2)

supersedes
company Krupp
engine D 459
D 573
D 710

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

**

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	3,8 - 4,1	0,3			
	6	0,5 - 1,2				
	12	6,4 - 7,4				
200	9	1,1 - 1,9				
	21	10,6 - 12,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

..A 101

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.	1900	16,0	without auxiliary spring			ca.21	400	6	1850	0
	1980	12,2					200	19,0-21,0		
	2080	6,1					400	5,7- 6,3	700	0
2a	2000	10,0-12,0	with auxiliary spring				500	3,7- 4,8		
	2080	3,8- 8,0					600	0,8- 3,2	480	1,2-1,8
	2160	1,0- 3,6					750	0 - 1		
	2300	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop		(6) Rotational-speed limit		(3a) Fuel delivery characteristics		Starting fuel delivery Idle (5)		(4a) Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min							
rev/min	cm ³ /1000 strokes			rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
1850	90,5 - 92,5	1910-1930				100	20mm RW	Adjustment (1)	
** Set all cylinders to tappet clearance 0.3 + 0.05 mm at TDC; mark end of delivery on cylinder 1 (drive end).									

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

The numbers denote the sequence of the tests

..A 110 R
..B 110**B. Governor Settings**

① Upper rated speed			Intermediate rated speed			④ Lower rated speed			③ Torque control		
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel	
1	2	3	4	5	6	7	8	9	10	11	
ca.65	1700	16,0	without auxiliary spring			ca.21	400	6	1680	0	
	1750	11,6						600	0		
	1800	6,2									
	1800	4,4-7,6	with auxiliary spring					19,0-21,0	5,7-6,3	450	1,2-1,8
	1860	1,3-3,4									
1950	0 - 1										
⑤											

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop		⑥ Rotational-speed limitation Note: changed to ... rev/min	③a Fuel delivery characteristics		Starting fuel delivery idle		⑤a Idle stop	
Test oil temp. 40°C (104°F)			rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	
1680	88,5-90,5	1710-1730	⑥a		100	10 mm RW	Adjustment (2)	

Checking values in brackets

*1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure CompensatorTest at n = _____ rev/min decreasing pressure - in bar gauge pressure (g.p.)
increasing

Pump/governor	Setting	Measurement	Control rod travel - diminution difference
	(g.p.) bar	(g.p.) bar	mm (1)

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 5,8e (5,8f)
Edition 2.64

En

PE 4 A 85 B 320 LS 207 RQ 400/1800 A 212 D

supersedes 5.61
company: Krupp
engine: D 459 M

Set all cylinders to tappet clearance $0.3 + 0.05$ mm at TDC; mark end of delivery on cylinder 1 (drive end).

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,8 - 4,3				
	6 12	0,5 - 1,2 6,4 - 7,4				
200	9	1,1 - 1,9				
	21	10,6 - 12,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5 rev/min 6		Idle speed regulation Setting point rev/min 7 Control rod travel mm 8		Test specifications rev/min 9 Control rod travel mm 10		Torque control rev/min 11 Control rod travel mm 12	
1700	13-13,8	1700	13,4	1800	13 - 13,4			300	7 - 8	700	16 - 17
				1840	5 - 13,4			400	5 - 7,8		
				1880	0 - 10			500	3 - 6		
				2000	0			600	0 - 3,5		
								700	0		

Torque-control travel
on flyweight assembly dimension a =

0,8

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm ³ /1000 strokes 2		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4 cm ³ /1000 strokes 5		Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7	
1750	81,0 - 82,0	1200		1200	84,0 - 86,0	100	21 mm RW
				1500	83,0 - 85,0		
				1800	mind. 79,5		

Checking values in brackets

H10

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

H40

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001 DAI 5,1i (5,1k)
Edition 3.64

En

PES 6 A 80 B 410 RS 174 RQ 250/1300 A 368 D

supersedes 5.61
company: Daimler-Benz
engine: OM 321 mA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,3			
	6 15	1,2 - 2,0 10,3 - 11,4				
200	9	2,9 - 3,7				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control					
①		Setting point		Test specifications		④		Setting point		Test specifications		⑤		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11	12				
1450	14-14,8	1450	14,4	1500 1520 1540 1560 1640	14 - 14,4 10 - 14,4 5 - 12 0 - 9,5 0	510	0	100 200 250 300 410	6,3-8,1 4,8-6,9 3,6-5,8 2 -4,5 0	500 700 900	15,6- 16 15,1- 15,4 14,4- 14,8				

Torque-control travel on flyweight assembly dimension a = 0,5 mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1000	53,0 - 55,0	500	500 700 1480	52,0 - 56,0 53,5 - 56,5 55,0 - 58,5		

Checking values in brackets

Testoil-ISO 4113

H11

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 HEN 5,4 e
Edition 6.68

En

PE 6 A 70 B 412 RS 73, 114

RQV/650-900 A 71

supersedes 11.64
company Henschel
engine 512 DG

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,9 \pm 0,1$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,6 - 7,0	0,3			
	6	1,4 - 1,9				
	18	11,3 - 11,9				
200	6	0,8 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
66±1,5	900	15 - 18	34±1,5	200	18,2-21	3a	100	7,6-8,0		
	920	10 - 15		350	14,9-15,4		250	4,7-6,4		
	960	1 - 8,4		650	11 - 13,8		500	3,5-4,1		
	1000	0 - 2,2		800	2 - 3,4		700	0 - 1		
	1020	0		840	0		730	0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
900	58,0 - 60,0	900 - 920						

Checking values in brackets

* 1 mm less control rod travel than col. 2

H17

BOSCH

Geschäftsbereich KM, Kundendienst, Kfz-Ausrüstung.
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 MAN 3,9 a
Edition 2.69

PE 4 A 65 B 410 RS 234 EP/RSV 200- ... A1, A21, 69, 102
RS 360
PE 4 A 65 C 410 RS 1072 EP/RSV 200-750 A1 B166, 512 ./.

En
supersedes 2.64
company M A N
engine D 0024 M ..

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	5,7 - 6,2	0,4			
	6 18	1,4 - 2,1 9,7 - 10,6				
200	6	0,8 - 1,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

200-1000 A 1 A 21, 69, 102

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed			4 Lower rated speed Control lever deflection in degrees 7			3 Torque control Control rod travel mm	
Control rod travel mm 2	Control rod travel mm rev/min 3		4	5	6	rev/min 8	Control rod travel mm 9		rev/min 10	mm 11
ca. 51	1000 16 1050 9,5 1090 4		without auxiliary spring			ca. 21	200 6			
	1040 9,6-12,4 1080 3,4 - 7 1200 0 - 1						100 19 - 21 200 5,7-6,3 300 1,4-3,9 450 0 - 1		980 0 400 0 250 1,2-1,8	
2a			with auxiliary spring							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F)		6 Rotational-speed limit Note changed to 1 rev/min		3a Fuel delivery characteristics		Starting fuel delivery Idle 5		4a Idle stop	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Full-load delivery see page 2!									
									./.

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

H18

B. Governor Settings

200-750 A 1 B 166; 512

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.39	750	16,0	without auxiliary spring			ca.18	200	6,0	730	0
	790	10,6					100	19 - 21	370	0
	815	6,3					200	5,7-6,3	250	1,2-1,8
	800	6,6-10,2	with auxiliary spring				300	1,7-3,8		
	850	1,8- 3,5					400	0 - 1		
②a	940	0 - 1								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop			⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤ Idle		④a Idle stop	
Test oil temp. 40°C (104°F)			Note: changed to ...)							
rev/min	cm³/1000 strokes		rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2		3		4	5	6	7	8	9
Nr.220	380	40,0-42,0	910				100	mind.20mm	200	6,0
Nr.221	930	48,5-50,5	960					RW	(
Nr.222	730	50,5-51,5	760						B 512	L)
Nr.223	880	48,5-50,5	910							
Nr.224	980	46,0-48,0	1020							
Nr.225	-	-	-							
Nr.226	1180	51,5-53,5	1220							
Nr.227	-	-	-							
Nr.228	1180	45,0-48,0	1220							
Nr.229	1080	51,5-53,5	1120							
Nr.230	700	51,5-53,5	720							
Nr.231	880	51,5-53,5	910							
Nr.232	-	-	-							
Nr.233	-	-	-							
Nr.234	-	-	-							
Nr.235	1230	44,5-46,5	1270							

Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 HEN5,4d(5,4e)

Edition 6.68

En

PE 6 A 70 B 321 LS 94
412 LS 146,1000RQ 200/1200 A 77 D
A 66 D, 241D

supersedes 11.64
company: Henschel
engine: 512 DJ
6 R 1012 J
6 R 1013 J

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,4 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,7 - 7,0	0,3			
	6	1,4 - 1,9				
	18	11,3 - 11,9				
200	6	0,8 - 1,5				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		Torque control rev/min 11	
	Control rod travel mm 2										Control rod travel mm 12
1150	14,3-15,1	1150	14,7	1200	14,5-14,7	430	0	100	6,8-8,2	400	16-16,2
				1220	10 - 14,7			150	5,7- 8	600	15,9-16
				1260	1 - 9,5			250	2,1-4,8	800	15,3-15,5
				1300	0 - 4			300	0 - 2,2	900	14,9-15,1
				1330	0			330	0		

Torque-control travel
on flyweight assembly dimension a = 0,4 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm ³ /~1000 strokes 2				cm ³ /~1000 strokes 5		Control rod travel mm 7
1000	55,5 - 57,5	500		500	55,5 - 58,5		
				1180	54,0 - 58,0		
							./.

Checking values in brackets

Testoil-ISO 4113

H20

H20

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH. Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 MAN 9,7 k

Edition 3.69

En

PES 6 A 95 C 412 RS 2108
(C 410)RS 2108 Y
..RS 2108 W
..RS 2108 V

RQV 200-1050 AB 514 L
-- AB 609 L
RQV 200-1100 AB 514 L
-- AB 609 L
EP/RSV 200-750 A7 B 429 L
B 509 L

supersedes 6.67
company: M A N
engine: D 2146 HM..
D 2146 M..
D 2156 HM..
D 2356 HM..

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	8,4 - 9,4	0,5			
	6	4,0 - 5,0				
	15	16,6 - 17,8				
200	9	5,9 - 6,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

200 - 1050

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
63±1,5	1050	15,0-17,8	-	-	-	10±1,5	100	6,2-8,0	-	-
	1100	10,2-14,4					200	4,4-6,7		
	1150	5,0-10,7					300	3,0-3,8		
	1200	0 - 6,6					500	1,5-2,8		
	1280	0					700	0		

200 - 1100

66±1,5	1100	15,0-18,0	-	-	-	10±1,5	200	6,5-8,0	-	-
	1150	9,8-14,2					320	3,2-3,8		
	1200	4,0-10,0					450	2,2-3,8		
	1250	0 - 5,8					550	1,2-2,7		
	1310	0					710	0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

H23

BOSCH

Geschäftsbereich KM Kundendienst, Kfz-Ausrüstung.
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

H22

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control-lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm
2	3						8	9	10	11
ca.49	750	16,0	without auxiliary spring			ca.22	200	6,0	730	0
	780	12,0					100	19 - 21	400	0
	820	5,0					200	5,7-6,3	250	1,2-1,8
	800	6,8-10,0	with auxiliary spring				300	1,7-3,8		
	850	1,8-3,5					400	0 - 1		
2a	950	0 - 1								

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9	
engine D 2146 HM 1, 1100	110,5-112,5	...HM 4 F, 1120	.. HMN 1 800	PES 6 A 95 C 410 RS 2108 Y	200	6 mm RW **	.. 609 L		
engine D 2156 HM 3, 1100	110,5-112,5	...HM 6 F, 1120	.. HMN 6 F 800	RQV 200-1100 AB 514 L, .. 609 L	200	6 mm RW **	.. 609 L		
engine D 2146 HM 1, 1100	110,5-112,5	...HM 3 F, 1120	.. HMN 3 F 800	PES 6 A 95 C 410 RS 2108 Y	200	6 mm RW **	.. 609 L		
engine D 2156 HM 5 F, 1100	110,5-112,5	...HMN 5 F, 1120	.. HMN 5 F 800	RQV 200-1050 AB 514 L, .. 609 L	200	6 mm RW **	.. 609 L		

Checking values in brackets

* 1 mm less control rod travel than col. 2

1050 108,0-110,0 1070 800 106,0-110,0 200 6 mm RW **

engine D 2146 M 14, ...MN 11 PES 6 A 95 C 410 RS 2108 V
RQV 200-1100 AB 514 L, .. 609 L

1100 109,0-111,0 1120 700 102,5-105,5 200 6 mm RW **
500 max. 103,0

engine D 2356 HM 2, ---HMN 2 PES 6 A 95 C 410 RS 2108 W
RQV 200-1100 AB 514 L, ..609 L

1100 123,5-125,5 1120 800 120,5-123,5 200 6 mm RW **
500 max. 119,5

Increase by $\pm 0,5 \text{ cm}^3$!

** To be specified by customer

Section C) Settings for fuel-injection pump with fitted governor - for EP/RSV:
In accordance with engine performance and speed as per data from M A N !

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9	

Checking values in brackets

* 1 mm less control rod travel than col. 2

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 HAN 5,2 c
Edition 9.64

En

PE 4 A 75 B 420 RS 87

RQV 250-600 A 78

supersedes 10.52
company: Hanomag
engine: D 55

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,4 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	9	3,0 - 3,4	0,3			
	12	6,1 - 6,4				
	15	8,5 - 9,3				
200	9	2,1 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
66±1,5	600	16 - 18,4				10±1,5	100	7 - 7,6		
	620	9 - 15					200	5 - 7,2		
	660	0 - 7					300	2,5-4,2		
							400	0 - 1,3		
	700	0					430	0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
600	93,0-95,0	600 - 620						

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

J1

J1

BOSCH

Geschäftsbereich KM Kundendienst Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50. Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Test Specifications Fuel Injection Pumps ② and Governors

En

PES 6 A 95 C 412 RS 2108 RQ 200/1050 AB 553 L

..RS 2108Y .. AB 647 L (519)

..RS 2108W

(D) ..RS 2108V RQ 200/1100 AB 553L

..RS 2108U ..AB 647L

..RS 2108(T)* RQ 200/1100 AB 816DL

supersedes 6.68

company: M A N

engine: D 2146 HM..

D 2146 M..

D 2156 HM..

D 2156 MY..

D 2356 HM..

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

*Start with "T" - change part no. to ...281!

Port closing at prestroke

1,7 + 0,1

mm (from BDC)

Rotations/rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	9	8,4 - 9,4		9	7,5 - 8,0	
1000	6	4,0 - 5,0		6	3,2 - 4,2	
	15	16,6 - 17,8			- - -	
200	9	5,9 - 6,9		6	0,5 - 1,4	

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

RQ ..

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min 1	2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
200/	1050 AB 553, 647	(519)									
600	15,7-16,3	600	16,0	1070	15,8-16,0	580	0	200	6,8-8,1	-	-
				1100	10,0-14,6			300	4,6-6,6		
				1140	2,0-10,0			400	1,3-3,8		
				1220	0			480	0		
At 1085-1100, governor must have regulated 1.3-1.7 mm from full load!											

Torque-control travel
on flyweight assembly dimension a = 0,2 mm

Speed regulation: At

1 mm less control
rod travel

200/1100 AB 553, 647

550	15,7-16,3	550	16,0	1120	15,8-16,0	560	0	100	6,8-8,1	-	-
				1160	7,6-13,4			250	4,6-6,6		
				1200	0 - 7,8			400	0 - 2,5		
				1260	0			460	0		

**

200/1100 AB 816D

600	15,7-16,3	600	16,0	1120	15,0-15,4	550	0	100	6,3-8,1	800	15,6-16,0
				1150	9,5-14,0			200	5,0-7,0		
				1200	0 - 8,0			300	3,0-5,0	950	15,4-15,6
				1260	0			450	0		

** At 1140-1155, governor must have regulated 1.3-1.7 mm from full load!

./.

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation RQV Control-rod stop RO	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7
* D 2146 HM 1, .. HM 4 F D 2156 HM 3, .. HM 6 F .. HMN 1, ..HMN 8 F			PES 6 A 95 C 410 RS 2108 <u>Y</u> RQ 200/1100 AB 553 L, *** (519) ** RQ 200/1100 AB 647 L			
1100	110,5-112,5	1100	800 500	108,5-111,5 max. 104,5	100 200	20 mm RW 6 mm RW
* D 2146 HM 1, .. HM 3 F D 2156 HM5F, .. HMN 5 F			PES 6 A 95 C 410 RS 2108 RQ 200/1050 AB 553 L, *** (519) ** RQ 200/1050 AB 647 L			
1050	108,0-110,0	1050	800	106,0-110,0	100 200	20 mm RW 6 mm RW
* D 2146 M 14, .. MN 11			PES 6 A 95 C 410 RS 2108, *** PES 6 A 95 C 410 RS 2108 <u>V</u> RQ 200/1100 AB 553 L, *** (519)** RQ 200/1100 AB 647 L			
1100	109,0-111,0	1100	700 500	102,5-105,5 max. 103,0	100 200	20 mm RW 6 mm RW
* D 2356 HM 2, .. HMN 2			PES 6 A 95 C 410 RS 2108 <u>W</u> RQ 200/1100 AB 553 L, *** (519)** RQ 200/1100 AB 647 L			
1100	123,5-125,5	1100	800 500	120,5-123,5 max. 122,5	100 200	20 mm RW 6 mm RW
* D 2156 HM 6			PES 6 A 95 C 410 RS 2108 <u>U</u> RQ 200/1100 AB 647 L			
1100	107,0-109,0	1100	700 500	100,5-103,5 max. 100,5	100 200	20 mm RW 6 mm RW
* D 2156 MY, ..MXN			PES 6 A .. RS 2108 with RQ .. AB816DL			
1100	98,5 - 100,5	500	700 500	99,5 - 102,5 max. 98,0	100 200	20 mm RW 6 mm RW

Governor ...519 as ..553, however without starting
fuel delivery **

When checking, expand values (columns 2 and 5) by
± 1.0 cm³!

* engine

*** or

En

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 KHD 5,1a
(5,1b)

Edition 5.72

En

PE (S) ³4 A 70 ^BC 410 RS 301, 424EP/RS 250/1400 AO ^AB 340Dsupersedes 10.68
company K H D
engine.

(V7051 = S117) D-RS1043, 1117, 1185

³
F 4 L 712
6 812

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery "B" "U" "C" cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery "C" 1043, 1117, 1185 cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,5 - 7,0	0,4	12	5,6 - 6,0	
	6	1,2 - 2,3		9	3,0 - 3,8	
	18	10,9 - 11,9			- - -	
200	6	0,7 - 1,5		9	1,8 - 2,6	

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
ca. 72	1400	8,9				ca. 45	250	5,9	1380	0
	1400	8,8-9,4					100	20,0-21,0		
	1420	6,6-7,7					250	5,6-6,2	900	0,8-1,0
	1440	4,6-5,7					350	3,5-4,5		
	1520	0,7-2,5					500	0 -1,4	500	0,8-1,0
	1600	0,3-1,0					550	0 -1,0		
						3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics high idle speed ⑤b		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
1380	41,8-43,8	1400	900 500	43,3-46,3 40,0-43,0				300

Checking values in brackets

* 1 mm less control rod travel than col. 2

J4

J4

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung.
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 KHD 16,0 a
Edition 3.67

En

PE 12 A 75 B 520 RS 178 RQ 200/1150 A 152 D
PE 12 A 85 B 520 RS 178 RQ 200/1150 A 257 D ./.
Cam sequence and angular cam spacing.
1 - 8 - 5 - 10 - 3 - 7 - 6 - 11 - 2 - 9 - 4 - 12 - 1
0 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315 - 360°

supersedes 5.64
company: K H D
engine: F 12 L 614
F 12 L 714*
A 12 L 614**

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC) 7,5 Ø

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,2 - 3,7	0,3			
	6	0,9 - 1,7				
	15	8,5 - 9,5				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 200/1150 A 152 D

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Test specifications rev/min 6		Control rod travel mm 8		Test specifications rev/min 10		Control rod travel mm 12	
1130	13,0-13,8	1130	13,4	1150	13,2-13,4	440	0	100	6,0-8,0	400	15,8-16,2
				1160	10,0-13,4			200	3,2-5,8	600	15,3-15,6
				1180	3,0-12,0			300	0 - 2	800	14,7-15,0
				1200	0 - 9			340	0	1000	13,9-14,2
				1250	0						

Torque-control travel
on flyweight assembly dimension a = 0,8 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7	
1130	70,0 - 72,0	600		600	76,5 - 79,5	100	mind. 9,9
				1000	73,0 - 76,0		
							./.

Checking values in brackets

Testoil-ISO 4113

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

J5

J5

A. Fuel Injection Pump Settings

2,15 + 0,1

8,5 Ø

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,9 - 5,5	0,4			
	6	1,3 - 2,1				
	15	12,3 - 13,1				
200	9	3,9 - 4,4				

Adjust the fuel delivery from each outlet according to the values in .

RQ 200/1150 A 257 D

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
1100	13,7-14,5	1100	14,1	1150	13,6-14,1	420	0	100	6,0-8,1	400	15,5-16,0
				1170	7,2-13,2			200	3,6-5,8	600	14,9-15,4
				1190	0 - 10,0			300	0 - 1,5	800	14,1-14,5
				1220	0 - 4,8			320	0	900	14,1
				1240	0						

Torque-control travel
on flyweight assembly dimension a = 0,7 mm

Speed regulation: At

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3		rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
1130	79,0 - 82,0	500		1000	81,9 - 85,0	100	mind. 12,9
				800	84,5 - 87,5		
				500	89,0 - 92,0		

Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 KHD 9,5 a(9,5b)
Edition 11.68

En

PE 6 A 75 B 320 RS 154 RQ 250/1150 A 307 D
RS 154 z*
RS 1035,z* AA 307 D

supersedes 5.64
company: K H D
* 145 PS
engine: F 6 L 714
F 6 L 613

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,2 - 6,6	0,2			
	9	3,0 - 3,7				
	15	8,5 - 9,5				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Control rod travel mm 5	rev/min 6	Control rod travel mm 8		Control rod travel mm 10		Control rod travel mm 12	
1050	14,7-15,3	1050	15	1150 1160 1180 1200 1250	14,8-15 11,4-15 4,2-12,6 0 - 9,2 0	440	0	200 250 300 340	7 - 8,1 4 - 6,6 0 - 3,2 0	400 600 800	15,7-16,3 15,4-15,8 15 - 15,4

Torque-control travel
on flyweight assembly dimension a = 0,3 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3	Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2			cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7	Control rod travel mm 8
1130	82,5 - 84,5	600	600 1000 600 1000	83,5 - 86,5 81,5 - 84,5 70,0 - 73,0 67,5 - 70,5		21 mm RW
1130	68,0 - 70,0					

Checking values in brackets

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

J7

J7

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 KHD 5,3 u

Edition 3.84

En

PE 4 A 75 B 420 LS 153,23
1036

RQ 250/1150 A 199D,68D

supersedes 20,7.60

company: K H D

engine: F 4 L 514

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,9 + 0,1

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,2 - 3,7	0,3			
	6 15	0,9 - 1,7 8,5 - 9,5				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		Torque control rev/min 11	
	Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		rev/min 9		Control rod travel mm 12
450	15,6-16,4	450	16	1150 1170 1190 1210 1260	13,4 13 - 13,4 4 - 12 0 - 9 0	400	0	200 250	7,2-8,1 4,6-7,2 1 - 4 0	550 800 1000	15,8-16 14,8-15,2 13,6-14,1

Torque-control travel
on flyweight assembly dimension a =

0,8

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm ³ /-1000 strokes 2				cm ³ /-1000 strokes 5		cm ³ /1000 strokes/mm 7
1150	67,5 - 69,5	600		1000 600 400	70,0 - 73,0 76,0 - 79,0 75,0 - 79,0	100	mind. 9,9

Checking values in brackets

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 KHD 5,3 y 1
Edition 5.64

En

PE 4 A 75 B LS 153 EP/RSV 200-1150 A1 A 331 D
RS 1036 A4 A 331 D*

supersedes 10,7.59
company K H D
engine F 4 L 514

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,2 - 6,6	0,3			
200	9	3,0 - 3,7				
	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RSV 200-1150 A 1 A 331 D

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel	Control rod travel				Control lever deflection in degrees	rev/min	Control rod travel	rev/min	Control rod travel
1	mm	mm rev/min	4	5	6	7	8	9	10	11
ca. 67	1150	16	without auxiliary spring			ca. 26	200	6	1130	0
	1200	11,4					100	19 - 21	700	0,2-0,4
	1250	5,8					200	5,7-6,3	500	1,0-1,2
2a	1200	10,2-12,2	with auxiliary spring				300	4 - 5	300	1,2-1,4
	1240	4,8- 8,6					400	0,8-3,5		
	1300	1,1-3,8					550	0 - 1		
	1400	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery		5 Idle stop	
Test oil temp 40°C (104°F)		Note changed to)				Idle			
rev/min	cm ³ /1000 strokes	rev/min		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel
1	2	3		4	5	6	7	8	9
1130	66,5-68,5	1160-1180		400	72,0 - 76,0	100	mind. 9,9	200	6
				600	73,5 - 76,5				
				1000	66,0 - 69,0				
									./.

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

J9

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

KHD 5,3 y 1

200-1150 A 4 331 D*

①A

C. Settings for Fuel Injection Pump with Fitted Governor

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Pump/governor	Setting (g.p.)	Measurement (g.p.)	Control rod travel- diminution difference mm (1)

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

En

PES 6 A 95 C 412 RS 2071 RQ 200/1050 AA452D,488D
 RS 2128,Z AA488D, (1)
 RS 2128 RQ 200/1100 AB647L (2)
 RS 2128 RQ 200/1100 AB774DL (3)

supersedes 7.64
 company: M A N
 engine: D 2146 MT
 D 2156 MT
 D 2156 MTN

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,95 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	9	8,4 - 9,0	0,5			
1000	6 15	4,0 - 5,0 16,3 - 17,8				
200	6	1,3 - 2,7				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

AA 452 D. AA 488 D (1)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Setting point		Test specifications				Test specifications				Control rod travel	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
1000	14,2-15,0	1000	14,6	1050 1060 1100 1140 1190	14,3-14,6 12,8-14,6 5,6-11,3 0 - 6,5 0	550	0	450 350 250 150 100	0 1,6-4,0 4,2-6,4 6,0-7,9 6,5-8,1	600 700 800 900 980	16,0 15,6-15,9 15,2-15,5 14,7-15,0 14,6

Torque-control travel on flyweight assembly dimension a = 0,45 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3		rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
"Z" 1050	112,5 - 114,5	700		700 500	117,0 - 120,0 max. 122,5	200	6 mm RW
1050	121,5 - 123,5	500		700 500	120,0 - 123,0 max. 119,0		
							./.

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

RQ .. AB 647 L (2)

MAN 9,7 c

-2- (2)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
550	15,6-16,4	550	16,0	1120 1160 1200 1260	15,8-16,0 7,6-13,4 0 - 7,8 0	560	0	100 200 300 400 460	6,8-8,1 5,6-7,4 3,5-5,5 0 -2,5 0	-	-

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7
1100	127,0-130,0	1100		800 500	124,5-128,5 max. 123,5	100	mind. 18 mm RW

Checking values in brackets

B. Governor Settings

RQ .. AB 774 DL (3)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
600	15,7-16,3	600	16,0	1120 1150 1200 1260	15,0-15,4 9,5-14,0 0 - 8,1 0	540	0	100 200 300 440	5,9-7,8 4,6-6,8 2,4-4,7 0	1050 1100	15,6-15,9 15,4-15,6

Torque-control travel on flyweight assembly dimension a =

0,15 mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7
1100	127,0-130,0	500		800 500	127,5 - 131,5 max. 127,5	100 200	mind. 18 mm RW 6 mm RW

En Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 HAN 3,3 a

Edition 1.65

En

PE 4 A 70 C 412 RS 1090
RS 1090 y

RQ 250/1425 AA 490 D

supersedes 10,64
company: Hanomag
engine: D 351

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,9 + 0,1$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,5 - 7,0	0,3			
	6	1,2 - 2,3				
	18	10,9 - 11,9				
200	6	0,5 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		Torque control rev/min 11	
	Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		rev/min 9		Control rod travel mm 12
1350	14,4-15,2	1350	14,8	1425 1440 1460 1480 1500 1550	14,6-14,8 10,9-14,8 6,2-13 0,7-10 0-7,2 0	500	0	100 150 200 300 350 400	6,3-8,1 5,8-7,7 4,9-6,9 2,2-4,5 0-2,7 0	1000 1100 1200 1300	15,9-16 15,5-15,8 15,1-15,5 14,8-15

Torque-control travel
on flyweight assembly dimension a = $0,35$ mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm ³ /-1000 strokes 2				cm ³ /-1000 strokes 5		cm ³ /1000 strokes/mm 7
"V"							
1400	53,0 - 55,0			1000 500	54,5 - 57,5 50,0 - 53,0	*	Delivery at n 1000 must be min. 1.5 cm ³ /1000 strokes higher than at n 1400
1400	55,0 - 57,0			1000 700 500	56,5 - 59,5 57,0 - 60,0 51,5 - 55,5		

Checking values in brackets

J13

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

J13

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 KHD 10,6 d

Edition 3.69

En

PE 8 A 75 B 320 RS77, 1099
RS1099
RS 77

RQ 200/1150 A151D (1)
RQ 250/1150 AB520D (2)
RQ 200/ 900 A 65 D (3)

supersedes 10,6c (5.64)
company: 10,6d (5.64)
engine: K H D
F 8 L 614
(170 PS - 1)
(155 PS - 2)
(A 8 - 120 PS - 3)

Cam sequence and angular cam spacing.

1 - 8 - 4 - 5 - 7 - 3 - 6 - 2 je 45°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,2 - 3,7	0,3			
	6 15	0,9 - 1,7 8,5 - 9,5				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 200/1150 A 151 D (1)

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 10		Torque control rev/min 11	
	Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		rev/min 9		Control rod travel mm 12
1100	13,4-14,2	1100	13,8	1150 1160 1180 1200 1250	13,4-13,8 10 -13,8 4 -12,2 0 - 9,8 0	440	0	100 200 300 340	6 - 8 3 - 3,5 0 - 2 0	400 600 800 1000	15,8-16,2 15,3-15,6 14,6-14,9 13,9-14,2

Torque-control travel on flyweight assembly dimension a = 0,7 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7
1130	67,0 - 69,0	600		600 1000	73,5 - 76,5 69,5 - 72,5	100	mind. 9,9

Checking values in brackets

Testoil-ISO 4113

J14

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

B. Governor Settings

RQ 250/1150 AB520D (2)

KHD 10,6 d -2- (2)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm		Setting point	Control rod travel mm	Control rod travel mm	Test specifications	Setting point	Control rod travel mm	Control rod travel mm	Test specifications	Control rod travel mm	Control rod travel mm
rev/min	mm	rev/min	mm	mm	rev/min	rev/min	mm	mm	rev/min	mm	mm
1	2	3	4	5	6	7	8	9	10	11	12
1100	13,5-14,3	1100	13,9	1150	13,7-13,9	430	0	330	0	400	15,8-16,2
				1160	11 -13,9			300	0 - 1,8	600	15,3-15,6
				1180	4,5-12			200	3,5-6	800	14,7-15
				1220	0 - 5,4			100	6 -8,1	1000	13,9-14,2
				1250	0						

Torque-control travel
on flyweight assembly dimension a =0,65
mm

Speed regulation At

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7	Control rod travel
1130	65,0 - 67,0	600	600	71,0 - 74,0			

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

RQ 200/900 A65D (3)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm		Setting point	Control rod travel mm	Control rod travel mm	Test specifications	Setting point	Control rod travel mm	Control rod travel mm	Test specifications	Control rod travel mm	Control rod travel mm
rev/min	mm	rev/min	mm	mm	rev/min	rev/min	mm	mm	rev/min	mm	mm
1	2	3	4	5	6	7	8	9	10	11	12
875	13,7-14,5	875	14,1	900	13,9-14,1	450		100	7,4-8,2	450	15,7-16,4
				920	7,4-13,8			200	4,4-7,2	600	15,2-15,6
				960	0 - 6,4			300	0 - 3	800	14,3-14,7
				990	0			350	0		

Torque-control travel
on flyweight assembly dimension a =0,6
mm

Speed regulation At

1 mm less control
rod travel**C. Settings for Fuel Injection Pump with Fitted Governor**

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7	Control rod travel
850	71,0 - 73,0	400	400	72,0 - 75,0	100	mind. 9,9	
			600	72,0 - 75,0			

En Checking values in brackets

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 KHD 16,0 g

Edition

En

PE 12 A 75 C 520 RS 1100 RQV 200-750 AA 478 R
 RQV 300-750 AA 478 R
 RQV 250-1010AA 527 DR
 RQV 200-1150AA 528 DR

supersedes

K H D

company:

engine:

F/A 12 L 614
 L 714

Cam sequence and angular cam spacing.

1 - 8 - 5 - 10 - 3 - 7 - 6 - 11 - 2 - 9 - 4 - 12 - 1

0 - 15 - 60 - 75 - 120 - 135 - 180 - 195 - 240 - 255 - 300 - 315 - 360°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	9	4,7 - 5,1	0,4			
	6 15	1,9 - 2,6 10,4 - 11,5				
200	6	0,9 - 1,8				

Adjust the fuel delivery from each outlet according to the values in
Testoil-ISO 4113

B. Governor Settings

RQV ...-... AA 478 R

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
66±1,5	750	15,0-18,0	-	-	-	10±1,5	100	6,3-8,0	-	-
	760	13,0-17,0					200	4,2-6,2		
	800	6,4-12,4					300	2,7-3,8		
	840	0 - 7,2					400	1,2-2,6	200-750	
	890	0					500	0		
66±1,5	750	15,0-18,0	-	-	-	10±1,5	250	7,2-8,0		
	760	13,0-16,8					350	3,0-5,2		
	800	6,0-12,0					450	1,3-2,5	300-750	
	840	0 - 6,0					500	0 - 1,0		
	880	0					540	0		

Checking values in brackets

* 1 mm less control rod travel than col. 2

J16

J16

BOSCH

Geschäftsbereich KH Kundendienst. Kfz-Ausstattung
 © by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
 Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

B. Governor Settings

RQV 250-1050 AA 527 DR

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
66±1,5	1050	15,0-17,8	-	-	-	10±1,5	200	5,8-8,0	1050	0
	1100	9,2-14,0					320	3,0-3,8	800	0,6-0,8
	1150	3,0-9,6					400	2,4-3,8	600	1,0-1,2
	1200	0-4,6					550	0,9-2,3	300	1,1-1,3
	1260	0					700	0		
						(3a)				

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8
1050	71,0-73,0	1070	800	69,0-72,0	100	20mmRW	1000
			500	75,0-78,0			Motor 714
			(1050)	76,5-81,5			
Measurement with starting lever pulled is in parentheses!							
750	77,0 - 79,0	760					
Re-check on engine!							

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

RQV 200-1150 AA 528 DR

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
66±1,5	1150	15,0-18,0	-	-	-	10±1,5	100	7,0-7,6	1150	0
	1200	9,6-14,0					200	4,3-6,6	900	0,6-0,8
	1240	5,5-10,6					300	2,6-3,4	700	1,2-1,4
	1280	1,6-7,6					500	1,2-2,6	400	1,4-1,6
	1370	0					730	0		
						(3a)				

Torque control travel a = 1,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point	Torque-control travel	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8
1150	66,0 - 68,0	1170	600	83,0 - 76,0		engine 614	
			400	71,5 - 75,7			

Checking values in brackets

* 1 mm less control rod travel than col 2

En

J17

J17

Test Specifications Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4 SCL 3,2 a

Edition 8.89

En

PES 3 A 65 C 410 RS 1104 (1)	EP/RSV 250-1000 AT B 397 D	supersedes	SCHL 3,2a(11.65)
RS 1060./ (1)	250-1000	company	Schlüter
RS 1104Z (2)	250- 900	engine	SD 105 W3 (42 PS - 1)
RS 1104Y (3)	250- 900		SD 100 W3 (32 PS - 2)
			SD 100 W3 (35 PS - 3-4)
			SD 105 W3 (45 PS - 55)

PES 3 A 70 C 410 RS 1104Z (4) 250-1000
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke RS 1104Y (5) 250-1000
1,9 + 0,1 mm (from BDC)

..S 1104

Rotational speed rev/min	Control rod travel mm	Fuel delivery 6,5 Ø cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery 7 Ø cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	5,7 - 6,2	0,3		6,5 - 7,0	
	6	1,4 - 2,1			1,2 - 2,3	
	18	9,7 - 10,6			10,9 - 11,9	
200	6	0,8 - 1,6			0,6 - 1,5	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed	4 Control lever deflection in degrees	rev/min	Control rod travel mm	3 Torque control	Control rod travel mm
Degree of deflection of control lever	2	3	4 5 6	7	8	9	10	11
ca. 51	1000 12			ca. 22	250	5,5	980	0
	1020 9,5		without auxiliary spring		100	19 - 21	800	0,2-0,4
	1050 5,4				250	5,2-5,8	700	0,5-0,7
	1020 9 - 10,2		with auxiliary spring		350	2,8-4,1	400	0,5-0,7
2a	1050 4,4- 6,6				400	0,6-3,2		
	1100 1,2- 3,2				520	0 - 1		
	1200 0,3- 1,0							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop	6 Rotational speed limit	3a Fuel delivery characteristics	Starting fuel delivery Idle	5 Idle stop
Test oil temp 40°C (104°F)	Note changed to) rev/min	rev/min	rev/min	Control rod travel mm
rev/min	cm ³ /1000 strokes	4	7	8
1	2	3	5	9
980	50,0 - 52,0	1020	500 53,0 - 56,0 400 50,5 - 53,5	100 20 mm RW
				250 5,5
				./.

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

318

J18

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings ... S 1060

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,3 - 3,7	0,3			
	6 12	1,0 - 1,8 5,1 - 6,1				
200	6	0,4 - 1,3				
	21	7,6 - 8,9				

Adjust the fuel delivery from each outlet according to the values in **C. Settings for Fuel Injection Pump with Fitted Governor**

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	mm
(2) 880	44,0 - 46,0	910	500 400	48,0 - 51,0 45,5 - 48,5	100	20 mm RW	250	5,5
(3) 880	47,5 - 49,5	910	500 400	53,0 - 56,0 51,0 - 54,0	100	20 mm RW	250	5,5
(4) 980	42,0 - 44,0	1020	700 500	45,5 - 48,5 44,5 - 47,5	100	20 mm RW	250	5,5
(5) 980	54,0 - 56,0	1020	500 400	58,0 - 61,0 55,5 - 58,5	100	20 mm RW	250	5,5

En

Test Specifications Fuel Injection Pumps ② and Governors

En

PES 6 A 90 C 412 LS2059	RQ 200/1050 AA456D	(1)	supersedes	10.68
421 LS2140,Z	200/1050 AA456D	(1, 2)	company:	M A N
LS2140	200/1100 AA548D	(3)	engine:	D 2146 HM1U(1-2)
LS2140	200/1000 AB703D	(4)		HM2U (3)
(D) LS2140	200/1050 AB813D	(5)		D 2356 HM5U (4)
LS2140	200/1100 AB456D	(6)		D 2156 HM6U (5)
PES 6 A 95 C 420 LS2140	200/1100 AB764	(7)		D 2356 HM51U(6-7)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5+0,1(9 Ø) mm (from BDC) 1,7 + 0,1 (9,5 Ø)

Rotational speed rev/min	Control rod travel mm	Fuel delivery "C" 9 Ø cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery "D" 9 Ø cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm "C" 9,5 Ø
1	2	3	4	2	3	6
1000	9	5,9 - 6,4		9	5,1 - 5,5	9 8,4-9,0
	6	2,3 - 3,1		6	1,6 - 2,6	6 4,0-5,0
	15	14,4 -15,5			- - -	15 16,3-17,8
200	9	3,7 - 4,6		9	1,9 - 2,9	6 1,4-2,6

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

RQ ..

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
Control rod travel mm		Setting point		Test specifications		Setting point		Test specifications		Control rod travel	
rev/min	mm	rev/min	mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11	12
200/1050 AA452D, 456D		(1-2)									
1000	14,2-15	1000	14,6	1070 14,3-14,6		570	0	100 7,0-8,1		450	16,0-16,6
				1100 9,0-13,2				250 4,6-6,9		800	15,2-15,5
				1140 0 - 8,6				350 2,0-4,5		950	14,6-14,8
				1200 0				470 0			
200/1100 AA548D		(3)									

Torque-control travel
on flyweight assembly dimension a = 0,45 mm

Speed regulation: At

1 mm less control
rod travel

1050 14,2-14,8	1050 14,5	1120 14,2-14,5	560 0	100 6,1-8,1	650 15,8-16,0
		1150 9,2-13,4		250 4,1-6,1	
		1200 0 - 7,6		350 1,6-3,9	800 15,2-15,6
		1260 0		460 0	950 14,5-14,9

Torque-control travel
on flyweight assembly dimension = 0,2 mm

200/1000 AB703D (4)					
550 15,7-16,3	550 16,0	1020 14,9-15,3	500 0	100 6,2-8,1	600 15,9-16,0
		1060 7,0-12,4		200 4,6-6,4	
		1100 0 - 7,2		300 1,8-4,1	750 15,4-15,6
		1150 0		400 0	
200/1050 AB813D (5)					
600 15,7-16,3	600 16,0	1070 15,0-15,3	560 0	100 6,9-8,1	700 15,9-16,0
		1100 9,0-13,8		200 5,7-7,8	
		1150 0 - 8,0		300 3,6-5,7	900 15,3-15,6
		1200 0		460 0	

B. Governor Settings

RQ..

MAN 9,7i

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
200/1100 AB456D	(6)										
600	15,7-16,3	600	16,0	1120	14,2-14,5	550	0	100	6,6-8,1	650	15,8-16,0
				1150	7,0-12,8			200	5,4-7,4	800	15,2-15,5
				1180	0 - 8,9			300	3,2-5,3	950	14,5-14,8
				1230	0			450	0		

Torque-control travel
on flyweight assembly dimension a = 0,4 mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a		Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /- 1000 strokes 2	rev/min 3		rev/min 4	cm ³ /- 1000 strokes 5	rev/min 6	Control rod travel cm ³ /1000 strokes / mm 7
D 2146 HM1U	Pe ..S2059 **			456D	(1)		
- 190 -	Pe ..S2140 **			456D			
1030	109,5-111,5	700		700	110,5 - 114,5	100	mind.20 mm RW
D 2146 HM1U -	Pe ..S2140Z **			456D (2)	-170-		
1030	96,0- 98,0	600		600	98,5 - 101,5	100	mind.20 mm RW
D 2146 HM2U -	Pe ..S2140 **			200/1100 AA548D (3)			
1080	94,5- 97,5	800		800	100,0 - 104,0		

Checking values in brackets

** with governors

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation ④				Idle speed regulation ⑤				Torque control ③	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Control rod travel mm 5	Test specifications rev/min 6	Setting point rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
200/1100 AB764	(7)										
550	15,7-16,3	550	16,0	1120	15,8-16,0	560	0	100	6,8-8,1	-	-
				1160	7,6-13,4			200	5,6-7,4		
				1200	0 - 7,8			300	3,5-5,5		
				1260	0			460	0		

Torque-control travel
on flyweight assembly dimension a

mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a		Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /- 1000 strokes 2	rev/min 3		rev/min 4	cm ³ /- 1000 strokes 5	rev/min 6	Control rod travel cm ³ /1000 strokes / mm 7
D2356 HM5U	Pe ..S2140 **			200/1000 AB703D (4)			
1000	123,0-126,0	500		800	118,0-122,0	200	6 mm RW
				500	max. 125,5		
D 2156 HM6U	Pe ..S2140 **			200/1050 AB813D (5)			
1050	109,0-111,0					100	mind. 18 mm RW
						200	6 mm RW
D 2356 HM51U	Pe ..S2140 **			200/1100 AB456D			
	Pe ..S2140 (9,50) **			200/1100 AB764			
1100	125,0-128,0	500		800	124,5-128,5	200	6 mm RW
				500	max. 122,5		

En Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 STE 6,0 a

Edition 6.69

En

PE 6 A 80 C 412 RS 2060 RQ 250/1400 AA 322 D
RS 415

supersedes 3.65
company: Steyr-Daimler-Puch
engine: WD 609 b

Note: pay attention to "without" or
"with" cap in full-throttle setting

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,3			
	6	1,2 - 2,0				
	15	10,3 - 11,4				
200	9	2,9 - 3,8				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
1300	14,4-15	1300	14,7	1400 1420 1450 1500 1580	14,4-14,7 11 - 14,7 6 - 12 0 - 7,6 0	510	0	100 200 250 300 350 410	6,2-8,1 4,6-6,8 3,6-5,8 2 - 4,4 0 - 2,7 0	450 700 850	16 - 16,3 15,2-15,6 14,7-15

Torque-control travel on flyweight assembly dimension a = 0,4 mm +0,05

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
without	1380	500	1000	51,7 - 54,7	100	8,4 - 8,9
with	1380		500	52,2 - 55,2		

Checking values in brackets

J22

J22

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP 001/4 STE 6,0 b

En Edition 3.65

PE 6 A 80 C 412 RS 2060 RQ 250/1500 AA 322 D
RS 415Note: pay attention to "without" or
"with" cap in full-throttle settingsupersedes 6.63
company Steyr-Daimler-Puch
engine WD 609 d

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,1 - 4,5	0,3			
	6	1,2 - 2,0				
	15	10,3 - 11,4				
200	9	2,9 - 3,8				

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9		Torque control rev/min 11	
	Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		Control rod travel mm 10		Control rod travel mm 12
1450	14,4-15	1450	14,7	1500	14,4-14,7	500	0	100	6 - 8	400	16 - 16,6
				1540	11 - 14			200	5 - 7	700	15,3-15,7
				1580	6,6-11,6			300	2 - 4	850	14,7-15
				1640	0 - 8			400	0		
				1740	0						

Torque-control travel
on flyweight assembly dimension a = 0,4 mm +0,05

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm ³ /-1000 strokes 2				cm ³ /-1000 strokes 5		cm ³ /1000 strokes/mm 7
without	1480	68,0 - 70,0	500	1000	56,5 - 59,5	100	8,4 - 8,9
with	1480	62,5 - 65,5		500	55,5 - 58,5		

Checking values in brackets

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 DAI 1,7 i 3
Edition 2.64

En

PES 4 A 50 C 410 RS 1010

EP/M 60 A 138 D

supersedes 1.63
company Daimler-Benz
engine OM 636

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	5	6	7
1000	12	2,2 - 2,7	0,2			
	9	0,8 - 1,4				
	18	4,5 - 5,2				
200	9	0,6 - 1,1				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Torque control travel mm	Leakage		Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
	Vacuum pressure drop mm water col	Time at least s	Vacuum mm w c	Control rod travel mm	Vacuum mm w c	Control rod travel mm	Vacuum mm w c	Control rod travel mm	Vacuum mm w c	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
1,0+0,1	500-480	10	300	12,3			300	12,3	30	13,3-13,4
							500	12,3	75	12,9-13,3
							570	8,7-11,8	125	12,3-12,6
							750	0 - 3,7		

control rod travel test (cols 4-11)
= rotational speed 500 rev/min
adjust breakaway (cols 4-5) by means of shims*
cam adjustment (B 8-9 - C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp 40°C (104°F)			Fuel delivery characteristics			idle (stop)** idle (imbalance)		Control rod travel from full-load to idle mm cm ³ /1000 strokes
rev/min	Vacuum mm wat col	cm ³ /1000 strokes	rev/min	Vacuum mm wat col	cm ³ /1000 strokes	rev/min	Vacuum mm wat col	
1	2	3	4	5	6	7		8
1000	300	28,2-29,2	500	50	30,2 - 33,2			
			700	125	28,2 - 31,2			

Checking values in brackets

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

En

PES 4 A 50 C 410 RS 1010

EP/M 60 A 152 DL

supersedes

company

engine

Daimler-Benz
OM 636-914

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	5	6	7
1000	12	2,2 - 2,7	0,2			
	9	0,8 - 1,4				
	18	4,5 - 5,2				
200	9	0,6 - 1,1				

Adjust the fuel delivery from each outlet according to the values in []

B. Governor Settings

Torque control travel mm	Leakage		Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
	Vacuum pressure drop mm water col	Time at least s	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm	Vacuum mm w.c.	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
1,1+0,1	500-480	10	300	12,5			405	12,5	50	13,6-13,7
* These values are to be precisely set by inserting shims WS 22 S 18-19 X beneath governor spring							420	11,4-12,5	70	13,3-13,7
							500	6,0- 8,5	125	12,5-12,9
							600	1,0- 4,5		
control rod travel test (cols. 4-11) = rotational speed 500 rev/min adjust breakaway (cols. 4-5) by means of shims* cam adjustment (B 8-9 - C 7-8) by means of shims**										

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp 40°C (104°F)			Fuel delivery characteristics			idle (stop)** idle (imbalance)		Control rod travel from full-load to idle mm cm ³ /1000 strokes
rev/min	Vacuum mm wat. col	cm ³ /1000 strokes	rev/min	Vacuum mm wat. col	cm ³ /1000 strokes	rev/min	Vacuum mm wat. col	
1	2	3	4	5	6	7	8	8
1000	300	29,2 - 31,2	750 500	125 50	28,7 - 31,7 31,7 - 34,7			

Checking values in brackets

Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 HEN 6,1 i
Edition 7.70

En

PE 6 A 75 B 412 RS 1007 RQ 250/1300 A 395 D
200/1250 A 395 D
/1300 A 395 D
See page 2!

supersedes 11.64
company: Henschel
engine: 522 DP

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,4 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,7 - 5,1	0,3			
	6	1,9 - 2,6				
	15	10,4 - 11,5				
200	6	0,9 - 1,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ 250/1300 A 395 D

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9		Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		rev/min 10		Control rod travel mm 12	
1250	14-14,8	1250	14,4	1300	14 - 14,4	510	0	100	6,2-8,1	400	15,8-16,9
				1320	9,6-14			200	4,8 - 7	600	15,4-15,9
				1340	3,6-11,2			250	3,5 - 6	800	15 - 15,5
				1360	0 - 8,4			350	0 - 2,8	1100	14,4-14,7
				1420	0			410	0		

Torque-control travel on flyweight assembly dimension a = 0,5 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7	
1000	57,0-59,0	500		500	57,0 - 61,0		
				700	59,0 - 62,0		
				1280	mind. 56,5		
							./.

Checking values in brackets

Testoil-ISO 4113

K2

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

K2

B. Governor Settings

RQ 200/1250 A 395 D

HEN 6,1 i

-2-

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1200	14-14,8	1200	14,4	1250	14,2-14,4	430	0	100	6,8-8,2	300	15,9-21
				1260	10 - 14,4			200	4,1-6,8	400	15,8-16,2
				1300	0 - 9			300	0 - 2	800	15,1-15,5
				1350	0			330	0	1000	14,4-14,8

Torque-control travel on flyweight assembly dimension a = 0,5 mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

RQ 200/1300 A 395 D

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1250	14,2-15	1250	14,6	1300	14,4-14,6	440	0	50	7 - 8	300	16 - 21
				1320	9 - 1,4			150	5 - 7	500	15,8-16,2
				1360	0 - 8,7			250	1 - 4	900	14,8-15,2
				1410	0			340	0	1100	14,6-14,7

Torque-control travel on flyweight assembly dimension a = 0,5 mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min		rev/min	cm ³ /-1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7

En Checking values in brackets

K3

K3

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 DAI 5,1m
Edition 3.64

En

PES 6 A 70 C 410 RS 1078 EP/RSV 250-1300 A 1 B 364 D

supersedes 1.63
company Daimler-Benz
engine OM 321

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,5 - 7,0	0,3			
	6	1,2 - 1,9				
	18	11,1 - 11,9				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 72	1300	16	without auxiliary spring			ca. 26	250	6	1280	0
	1340	11,6					100	19 - 21	1000	0,5-0,7
	1380	5,8	with auxiliary spring				250	5,7-6,3	400	0,5-0,7
2a	1350	9 - 11,5					400	2 - 4		
	1380	4,4- 7,7					500	0 - 2		
	1420	1,6- 4,2					600	0 - 1		
	1500	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note: changed to) rev/min							
rev/min 1	cm ³ /1000 strokes 2	3	4	cm ³ /1000 strokes 5	6	rev/min 7	cm ³ /1000 strokes 8	rev/min 9	Control rod travel mm 10
1280	50,5-52,5	1310-1330	900	52,5 - 55,5	100	mind. 7,9	250	6	
			500	45,5 - 48,5					

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

K4

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 HAN 2,8b2
Edition 12.66

En

PE 4 A 60 C 310 LS 1088

EP/RSV 250-1000 A1 B225DL
EP/RSV 250-1300 A2 B229DL
EP/RSV 300-600-1500A2B128D

supersedes:
company
engine

Hanomag
D 28 CE

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	4,5 - 5,0	0,3			
	6	0,5 - 1,2				
	18	8,3 - 9,1				
200	6	0,3 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed 4 5 6			④ Lower rated speed Control-lever deflection in degrees rev/min 7 8 9			③ Torque control rev/min mm 10 11	
ca. 63	Control rod travel mm 2	Control rod travel mm rev/min 3				ca. 30	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
	1000	16,0	without auxiliary spring				250	6,5	980	0
	1070	11,4					100	19 - 21	900	0,5-0,7
	1140	5,1					250	6,2-6,8	800	1,3-1,5
	1100	7,2-10,0	with auxiliary spring				400	2,8-4,6	500	1,3-1,5
	1180	1,4- 4,4					600	0 - 1		
	1300	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F) rev/min 1		⑥ Rotational-speed limit Note changed to) rev/min 3		③a Fuel delivery characteristics rev/min cm ³ /1000 strokes 4 5		Starting fuel delivery Idle rev/min cm ³ /1000 strokes 6 7		④a Idle stop rev/min Control rod travel mm 8 9	
980	38,0 - 40,0	1020		800	45,7 - 48,7				
				500	45,0 - 48,0				
									./.

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

K5

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control		
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11	
ca. 52	1300	16,0	without auxiliary spring			ca. 20	250	6,5	1280	0	
	1360	11,8					19 - 21	1100	0,3-0,5		
	1420	6,8						250	6,2-6,8	900	0,6-0,8
	1400	6,8-9,6						500	1,3-4,0	500	1,0-1,2
	1500	1,6-4,0						700	0 - 1		
2a	1650	0 - 1	with auxiliary spring								

(2b) Full-load stop Test oil temp. 40°C (104°F)		(6) Rotational-speed limitat. Note: changed to ... rev/min		(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5)		(4a) Idle stop	
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	5	4	5	6	7	8	9		
1280	40,5 - 42,5	1320	800 500	44,0-47,0 44,0-47,0							

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control			
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9	10	11		
ca. 61	1500	16,0	without auxiliary spring			ca. 20	300	6,0	1200	0		
	1560	10,4							150	19 - 21	1000	0,2-0,4
	1620	6,1							300	5,7-6,3	800	0,6-0,8
2a	1580	8,1-10,4	with auxiliary spring				400	4,2-5,0	600	0,9-1,1		
	1640	3,5- 6,0					500	1,7-3,7	400	1,1-1,3		
	1700	0,6- 3,3					700	0 - 1				
	1800	0 - 1										

(2b) Full-load stop Test oil temp. 40°C (104°F)		(6) Rotational-speed limitat. Note: changed to ... rev/min		(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5)		(4a) Idle stop	
rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9			
1480	43,2 - 45,2	1520	1150	43,0 - 46,0				Set intermediate speed stop			
			800	45,0 - 48,0			600 min⁻¹				
			500	45,5 - 48,5							

* 1 mm less control rod travel than col. 2

En

KK

K6

Test Specifications Fuel Injection Pumps ①A and Governors

40

VDT-WPP 001/4 HAN 3,3 b
Edition 11.65

En

PE 4 A 70C412 RS 1090
RS 1090 Y
EP/RSV 250-600-1425 A2B 181 DL
EP/RSV 300-600-1425 A2B 181 DL

supersedes 10.64
company Hanomag
engine D 351
D 351 ML
D 351 MLA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,9 + 0,1$
 $2,5 + 0,1$ mm (from BDC)

...S 1090
...S 1090 Y

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,5 - 7,0	0,4			
	6	1,2 - 2,3				
	18	10,9 - 11,9				
200	6	0,5 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

EP/RSV 250-600-1425 A2B 181 DL

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.55	1425	16,0	without auxiliary spring			ca.19	250	6	1400	0
	1480	11,6					100	19 - 21	1200	0,2-0,4
	1540	5,7					250	5,7-6,3	1000	0,6-0,8
	1500	8,4-11,0	with auxiliary spring			400	3,4-4,6	400	0,6-0,8	
	1550	4,0- 6,8				500	0,6-3,5			
	1600	2,0- 4,2				700	0 - 1			
②a	1750	0,3- 1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop Test oil temp 40°C (104°F)		⑥ Rotational-speed limit Note changed to) rev/min		③a Fuel delivery characteristics		Starting fuel delivery Idle		⑤		④a Idle stop	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm		
1	2	3	4	5	6	7	8	9			
Pe...S 1090 with EP/RSV 250-600-1425 A2B 181 DL											
1400	52,5 - 54,5	1430-1440	1000 500	54,0 - 57,0 50,0 - 53,0	100	ca.21mmRW	Intermediate speed stop n = 600				

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

K7

K7

The numbers denote the sequence of the tests

EP/RSV 300-600-1425 A2B 181 DL

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 55	1425	16,0	without auxiliary spring			ca. 20	300	6	1400	0
	1480	11,6					150	19 - 21	1100	0,3-0,5
	1540	5,9					300	5,7-6,3	900	0,6-0,8
	1520	5,8-9,2	with auxiliary spring				500	1,8-3,8	400	0,6-0,8
	1600	2,0-4,2					700	0 - 1,0		
②a	1750	0,3-1,0								

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
Pe ...S 1090 Y /		EP/RSV 250-600-1425 A2B 181 DL							
1400	55,0 - 57,0	1430-1440	1000	56,5 - 59,5	100	ca. 21mmRW	**		
			700	57,0 - 60,0					
			500	52,0 - 55,0					
1400	60,0 - 62,0	1430-1440	1000	64,0 - 67,0	100	ca. 21mmRW	**		
			500	58,0 - 61,5					

Checking values in brackets

* 1 mm less control rod travel than col. 2

Pe ...S 1090 Y / EP/RSV 300-600-1425 A2B 181 DL

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
②a										

C. Settings for Fuel Injection Pump with Fitted Governor

②b Full-load stop		⑥ Rotational-speed limitat.		③a Fuel delivery characteristics		Starting fuel delivery ⑤		④a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
Pe ...S 1090 /		EP/RSV 300-600-1425 A2B 181 DL						**	
1400	51,0 - 53,0	1430-1440	1000	55,0 - 58,0	100	ca. 21mmRW			
			500	51,0 - 54,0					
								Set intermediate speed stop 600 min⁻¹	

Checking values in brackets

* 1 mm less control rod travel than col. 2

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation ROV Control-rod stop RC	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7

(2)
930 45,0-47,0 960 700 46,5-49,5 100 20 mm RW X
400 44,5-47,5

(3)
930 52,5-54,5 960 700 54,5-57,5 100 20 mm RW X
400 52,5-55,5

(4)
980 59,5-61,5 1020 700 61,5-64,5 100 20 mm RW X
500 62,0-65,0

X Idle stop : 250 U/min. 5,5 mm RW

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 MWM 2,1 a 1
Edition 11.65

En

PES 2 A 75 C 410/3 RS 1133 EP/RSV 450-900 A 2 B 410 DL

supersedes -
company M W M
engine AKD - 2 K 412 Z/2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,45 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,2 - 3,7	0,3			
	6	0,9 - 1,7				
	15	8,5 - 9,5				
200	9	1,9 - 2,8				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
ca. 36	900	16,0	without auxiliary spring			ca. 20	450	6	880	0
	950	11,3					200	19 - 21	800	0,2-0,4
	1000	6,1					450	5,7-6,3	700	0,5-0,7
	980	6,5-9,6	with auxiliary spring				600	1,8-3,7	550	0,6-0,8
	1050	3,0-4,6					800	0 - 1		
2a	1200	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to)							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
880	60,0-62,0	910-920		500	58,5 - 61,5			450	6

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

Testoil-ISO 4113

K11

KAA

Test Specifications Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4 MAN 2,1 i

Edition 4.64

En

PE 3 A 60 C 410 LS 1135

EP/RSV 250-1150 A1 B 156 D
B 177 D

supersedes

company

engine

Hanomag
D 21 CR
D 21 CK

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	4,5 - 5,0	0,3			
	6	0,5 - 1,2				
	18	8,3 - 9,1				
200	6	0,3 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min Degree of deflection of control lever 1			Intermediate rated speed			4 Lower rated speed Control lever deflection in degrees rev/min			3 Torque control Control rod travel rev/min	
Control rod travel mm 2	Control rod travel mm rev/min 3		4	5	6	Control rod travel mm 9	rev/min 8		Control rod travel mm 11	rev/min 10
ca. 65	1150 12 1180 9,2 1210 5,5		without auxiliary spring			ca. 28	250 6		1130 0 1000 0,5-0,7 800 1,2-1,4 500 1,2-1,4	
2a	1200 5,5 - 8 1250 2 - 4 1350 0 - 1						100 19 - 21 250 5,7-6,3 400 2 - 4 600 0 - 1			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop Test oil temp 40°C (104°F) rev/min 1		6 Rotational speed limit Note changed to rev/min 3		3a Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle rev/min 6		5 4a Idle stop Control rod travel mm 9	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes 7		rev/min 8	
1130	40,7 - 42,7	1160-1180	800 500	46,0-49,0 46,5-49,5					

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

K12

K12

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 IHC 2,2 g(2,2 h)
Edition 12.64

En

PES 4 A 60 B 420 LS 105 EP/RSV 250-900 A 4/18
LS 105 Z
LS 105 Y

supersedes 1.63
company I H C
engine DD 132
DD 132 S
DD 148

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	4,5 - 5,0	0,3			
	6	0,5 - 1,2				
	18	8,3 - 9,1				
200	6	0,3 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 51	900	16	without auxiliary spring			ca. 21	250	5,5	750	0
	940	10					100	19 - 21	400	0
	970	5					250	5,2-5,8	300	1,2-1,8
							300	3 - 4,5		
2a	940	8 - 12	with auxiliary spring				350	0 - 2,6		
	980	2,4 - 6					450	0 - 1		
	1000	1 - 3								
	1100	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min				Idle			
rev/min	cm ³ /1000 strokes			rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
750	30,0-32,0	910							
750	42,5-44,5	910							
750	34,5-36,5	910							

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

Z
Y

K13

BOSCH

Geschäftsbereich KH Kundendienst K12-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 IHC 1,8 h
Edition 12.64

En

PES 3 A 60 D 320/3 LS 101Y	EP/RSV 250-750 A4 A 146 D	supersedes	10.61
LS 101 X	-900 A4 A 146 D	company	I H C
LS 101 W	-950 A4 A 146 D	engine	DU 99 D
	-1000 A4 A 146 D		DD 99
	-1400 A5 A 151 D		DU 111 D
			DD 111

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	4,5 - 5,0	0,3			
	6	0,5 - 1,2				
	18	8,3 - 9,1				
200	6	0,3 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

EP/RSV 250-750 A 4 A 146 D

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.45	750	16	without auxiliary spring			ca.22	250	5,5	780	0
	800	9,2					100	19 - 21	600	0,1-0,3
	825	5					250	5,2-5,8	300	0,3-0,5
2a	800	7,4-10,2	with auxiliary spring				350	2,6-4		
	850	2,8- 4,5					400	0,6-3		
	950	0 - 1					500	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 4a Idle stop	
Test oil temp. 40°C (104°F)		Note changed to) rev/min							
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
X									
730	32,0-36,0	760-770	500	33,0-36,0					
W									
730	37,0-39,0	760-770	500	37,5-40,5					
									./.

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich F.H. Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

1004

K14

B. Governor Settings

EP/RSV 250-900 A 4 A 146 D

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 51	900	16	without auxiliary spring			ca. 21	250	5,5	880	0
	950	9					100	19 - 21	700	0,3-0,5
	970	4,6					250	5,2-5,7	300	0,7-0,9
2a	950	7 - 10	with auxiliary spring				350	2,6-4		
	1000	1,6-3,8					400	0,6-3		
	1100	0 - 1					520	0 - 1		

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
X 880	32,0-34,0	910-920		500	33,0-36,0				
W 880	36,5-38,5	910-920		500	37,5-40,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

EP/RSV 250-950 A 4 A 146 D

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 55	950	16	without auxiliary spring			ca. 22	250	5,5	930	0
	1000	9					100	19 - 21	700	0,3-0,5
	1020	5,5					250	5,2-5,8	300	0,7-0,9
2a	1000	7 - 10,5	with auxiliary spring				350	2,6-4		
	1050	2 - 4					400	0,6-3		
	1150	0 - 1					520	0 - 1		

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
Y 930	35,5 - 37,5	960 - 970		500	38,0 - 41,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

The numbers denote the sequence of the tests

EP/RSV 250-1000 A 4 A 146 D

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 58	1000	16	without auxiliary spring			ca. 22	250	5,5	980	0
	1050	8,8					100	19 - 21	700	0,4-0,6
	1070	5					250	5,2-5,8	350	0,7-0,9
	1050	7 - 10	with auxiliary spring				350	2,6-4		
2a	1100	2 - 4					400	0,8-3		
	1200	0 - 1					520	0 - 1		

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
X									
980	31,5-33,5	1010-1030		500	33,0-36,0				
Y									
980	35,5-37,5	1010-1030		500	38,0-41,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

EP/RSV 250-1400 A 5 A 151 D

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 62	1400	16	without auxiliary spring			ca. 20	250	5,5	1380	0
	1480	9					100	19 - 21	800	0
	1520	4,6					250	5,2-5,7	500	0,3-0,5
	1480	7,5-10	with auxiliary spring				400	2,6-4		
2a	1550	2,5-4,5					500	0 - 2,8		
	1600	0,5-2,8					650	0 - 1		
	1700	0 - 1								

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery 5 Idle		4a Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)							
rev/min	cm³/1000 strokes	rev/min		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3		4	5	6	7	8	9
Y									
1380	36,0 - 38,0	1410-1430		500	34,0 - 37,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications

Fuel Injection Pumps ②

and Governors

VDT-WPP 001/4 KHD 7,5 b

Edition 3.69

En

PE 6 A 85 C 410 LS 2211	RQ 250/1300 AB 575 DL	(1)
S 2211	RQV 250-1300 AB 612 DL	(2)
S 2211	RQV 250-1300 AB 666 DL	(3)
S 2211	EP/RSV 300-1250 A8 B254DL	(4)
S 2211	EP/RSV 300-1150 A4 B254DL	(5)
S 2211Z	EP/RSV 300-1150 A4 B254DL	(6)

supersedes 9.67

company: K H D

engine: F6 L312

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,9 - 5,5	0,4			
	6	1,3 - 2,1				
	15	12,3 - 13,1				
200	9	3,9 - 4,4				

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQ 250/1300 AB 575 DL (1)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
PRG check		Setting point		Test specifications		Setting point		Test specifications		Torque control	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	15,7-16,3	550	16,0	1300	13,6-14,0	500	0	100	6,2-8,1	750	15,8-16,0
				1330	7,0-12,3			200	4,8-6,8	900	15,1-15,4
Breakaway not before n = 1310				1350	0 - 9,5			300	2,0-4,5	1100	14,0-14,3
				1410	0			400	0		

Torque-control travel on flyweight assembly dimension a = 0,65 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3		rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
(1) 1300	61,5 - 63,5	500		1100	59,0 - 62,0	100	ca. 18 mm RW
				800	63,0 - 67,0		
				500	57,5 - 61,5		
							./.

Checking values in brackets

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
RQV 250	1300	AB 612 DL	(2) (PRG...054 note)				**			
ca.66	1300	15,0-16,4	**	Dimension a = 1,2 mm		ca.10	100	6,6-8,0	1300	0
	1350	9,9-14,6					300	4,2-6,5	1000	0,5-0,7
	1400	4,6-10,8					450	2,7-3,8	550	1,1-1,3
	1450	0 - 6,6					600	1,6-3,1		
	1530	0					840	0		
RQV 250	1300	AB 666 DL	(3)				**			
ca.66	1300	15,0-17,8				ca.10	150	6,6-8,0	1300	0
	1350	11,0-14,9					300	4,6-6,8	1000	0,6-0,8
	1400	6,6-11,8					450	1,6-3,2	600	1,1-1,3
	1470	0 -10					600	0,6-1,8		
	1580	0					770	0		
EP/RSV	300-1250	A8 B254DL	(4)							
ca.61	1250	16,0	without auxiliary spring			ca.22	300	6,0	1230	0
	1300	11,4					100	19 - 21	1000	0,4-0,6
	1340	6,6					300	5,7-6,3		
	1320	7,2-10,3					450	2,8-4,4		
	1380	3,2- 5,0					680	0 - 1	500	0,4-0,6
1540	0 - 1	with auxiliary spring								
EP/RSV	300-1150	A4 B254 DL	(5) (6)							
ca.73	1150	16,0	without auxiliary spring			ca.28	300	6,0	1130	0
	1200	9,2					100	19 - 21	800	0,7-0,9
	1220	6,0					300	5,7-6,3		
	1200	7,5-10,6					400	2,9-4,4		
	1250	2,3- 4,6					580	0 - 1	500	0,7-0,9
1350	0 - 1	with auxiliary spring								

Testoil-ISO 4113

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
2a										

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limitat.		3a Fuel delivery characteristics		Starting fuel delivery		5 Idle stop	
Test oil temp. 40°C (104°F)		Note: changed to ...)				Idle			
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm	
1	2	3	4	5	6	7	8	9	
(2,3)	1300	61,5-63,5	1320	1100	59,0-62,0	100	ca.18mmRW	To be specified by customer (→ 666DL)	
(4)	1250	68,0-70,0	1270	800	63,0-67,0				
(5)	1150	68,0-70,0	1170	500	57,5-61,5				
				500	65,0-68,0				
				500	74,0-77,0				
(6)	1150	66,5-68,5	1170	800	69,0-72,0				
				500	71,0-74,0				
				500	66,0-69,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

En

K18

K18

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 PEN 4,7 b
Edition 4.64

En

PES 6 A 75 B 320 RS 394, z EP/RSV 200-1000 A 4 A 330
C 320 RS 2049 z A 330z
C 320 RS 2080 z

supersedes 3.8.61
company Penta
engine MD 47 A

Test with EFEP 35 C (B-line)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,8 + 0,1 mm (from BDC)

RW 18

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	3,7 - 4,0	0,2			2,8* (max. 2,4-3,0)
200	6	0,1 - 0,5				
	9	0,8 - 1,6				
	9	1,0 - 1,7				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

A 4 A 330

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 69	1000	16	without auxiliary spring			ca. 30	200	6,5	980	0
	1050	11,7					100	19 - 21	420	0
	1100	6,4	with auxiliary spring				200	6,2-6,8	250	1,2-1,8
	1050	11 - 13					300	2,6-4,5		
	1080	7 - 10					400	0 - 1,5		
	1150	0,7-3,9					500	0 - 1		
2a	1250	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		5 Idle stop	
Test oil temp 40°C (104°F)		Note changed to .)							
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
800	37,5 - 38,5	1010-1030	200	5 - 9*			200	6,5	
"Z"				dispersion max. 1,2					
800	41,5 - 42,5		1100	9 - 13*					
				dispersion max. 3					

* In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Testoil-ISO 4113

K19

-K 24

The numbers denote the sequence of the tests

B. Governor Settings

EP/RSV 200-1000 A4 A 330 z

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 52	1000	16	without auxiliary spring			ca. 17	200	6,5	980	0
	1020	11,8							420	0
	1040	6,4					100	19 - 21	250	1,2-1,8
2a	1030	7,2-10,6	with auxiliary spring				200	6,2-6,8		
	1060	3 - 4,2					300	2,3-4,2		
	1100	0,3- 2,1					350	0 -2,7		
	1130	0 - 1					410	0 - 1		

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit.		3a Fuel delivery characteristics		Starting fuel delivery Idle		5	4a Idle stop
Test oil temp. 40°C (104°F)		Note: changed to ...)							Control rod travel mm
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	rev/min	mm
1	2	3	4	5	6	7	8	9	

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure CompensatorTest at n = rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel-diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)

Notes:

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

En

K20

K20

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4 HEN 5,4 h

Edition 11.64

En

PE 6 A 70 B 412 RS 146 EP/RSV 200-1230 A 1 A337 D
V 4899 D

supersedes
company
engine

1.59
Henschel
512 DJP/100

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,4 + 0,1$ mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	6,7 - 7,0	0,3			
	6	1,4 - 1,9				
	18	11,3 - 11,9				
200	6	0,8 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min	Control rod travel mm	Control rod travel mm rev/min	Intermediate rated speed	4 Control lever deflection in degrees	rev/min	Control rod travel mm	3 Torque control	Control rod travel mm
1	2	3	4 5 6	7	8	9	10	11
ca. 65	1200	16	without auxiliary spring	ca. 24	200	6	1180	0
	1250	10,4			100	19 - 21	1000	0
	1290	5,2			200	5,7-6,3	800	0,5-0,7
	1250	7 - 12	with auxiliary spring		300	3,8 - 5	550	0,9-1,1
	1300	3 - 6,5			400	0,5-3,5		
	1350	0 - 3			550	0 - 1		
2a	1450	0 - 1						

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery 5		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min				Idle			
rev/min	cm ³ /1000 strokes			rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	
1180	55,0 - 57,0	1210-1230	500	55,4 - 58,5				200	6
			1000	55,5 - 58,5					

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

K21

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

K21

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4 HEN 5,4 g (5,4h)
Edition 11.64

En

PE 6 A 70 B 412 RS 114
75
1009
1184

EP/MZ 80 C 79/2 L
37/2
133/2

supersedes 1.59
company Henschel
engine 512DG 6 R 1012 G
512DGP
522DG 6 R 1013 G

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	5	6	7
1000	12	6,5 - 7,0	0,3			
	6	1,2 - 1,9				
	18	11,1 - 11,9				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in {

B. Governor Settings

Torque control travel mm	Leakage		Control-rod travel limitation breakaway*		Control rod travel test		Auxiliary spring auxiliary cam**		Torque control	
	Vacuum pressure drop mm water col	Time at least s	Vacuum mm w c	Control rod travel mm	Vacuum mm w c	Control rod travel mm	Vacuum mm w c	Control rod travel mm	Vacuum mm w c	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
	500-480	10			800	4,7-5	200 370 700 800 1800	20,8-21,3 17,3-20,6 4,7- 8,8 4,7-5,0 1,9-3,1		

control rod travel test (cols. 4-11)
= rotational speed 500 rev/min
adjust breakaway (cols. 4-5) by means of shims*
cam adjustment (B 8-9 - C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load stop screw Test oil temp 40°C (104°F)			Fuel delivery characteristics			idle (stop)** idle (imbalance)		Control rod travel from full-load to idle mm cm ³ /1000 strokes
rev/min	Vacuum mm wat. col	cm ³ /1000 strokes	rev/min	Vacuum mm wat. col	cm ³ /1000 strokes	rev/min	Vacuum mm wat. col	8
1	2	3	4	5	6	7		
1000		59,0-61,0						

Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 HAN 2,8r

Edition 8.66

En

PE 4 A 65 B 310 LS 112, 416 RQ 200/1400 A58, 134,570

112z*

112y**

1017

1017z*

A 406,442

1017, 1017z EP/RSV 300-600-1400A5A129 ./.

supersedes 10.64

company: + HAN 2,8r1

engine: Hanomag

D 28 LA

*D 28 LAS

**D 28 LAS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,3 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	5,7 - 6,2	0,3			
	6	1,4 - 2,1				
	18	9,7 - 10,6				
200	6	0,8 - 1,8				

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3		Test specifications Control rod travel mm 5		Idle speed regulation Setting point rev/min 7		Test specifications Control rod travel mm 9		Torque control rev/min 11	
	Control rod travel mm 2		Control rod travel mm 4		rev/min 6		Control rod travel mm 8		Control rod travel mm 10		Control rod travel mm 12
500	15,7-16,3	500	16	1400	15,8-16	530	∅	200	7,6-8,6		
				1420	10,4-16			300	4 - 6,6		
				1460	2 - 10,5			350	0,4-4,4		
				1500	0 - 5,2			400	0 - 2		
				1540	0			430	0		

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
	cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		Control rod travel mm 7
1000	55,0 - 57,0		1000				
1000	58,5 - 60,5		1000				
1000	40,0 - 41,0		1000				
							./.

Checking values in brackets

K23

BOSCH

Geschäftsbereich KH, Kundendienst, Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

K23

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 IHC 2,2i (2,2k)

Edition 12.64

En

PES 4 A 60 B 420RS 105 EP/RSV 250-950 A 4/17 D
RS 105 Z

supersedes 12.62
company I H C
engine DD 132
DD 148

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Testoil-ISO 4113

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	4,5 - 5,0	0,3			
	6	0,5 - 1,2				
	18	8,3 - 9,1				
200	6	0,3 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

① Upper rated speed rev/min			Intermediate rated speed			④ Lower rated speed			③ Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min				Control-lever deflection in degrees	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca. 55	950	16	without auxiliary spring			ca. 22	250	5,5	930	0
	980	12				100	19 - 21	700	0,6-0,8	
	1020	5,4				250	5,2-5,8	300	0,6-0,8	
	1000	6 - 10,4				350	2,5-4			
	1050	2 - 4	with auxiliary spring			450	0 -2			
	1100	0 - 2				550	0 -1			
1150	0 - 1									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min							
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
930	29,0-31,0	960	500	29,0-32,0					
Z			700	31,0-32,0					
930	37,5-39,5	960	500	37,5-40,5					
			700	38,5-41,5					

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

Test Specifications Fuel Injection Pumps (1A) and Governors

40

VDT-WPP 001/4 IHC 2,2 k
Edition 12.64

En

PES 4 A 60 B 420 LS 105 EP/RSV 250 - 1200 A 4/18
LS 105 Y - 1250 A 4/18

supersedes 1.63
company I H C
engine DD 132
DD 148

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7 + 0,1 mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm ³ /100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1	2	3	4	2	3	6
1000	12	4,5 - 5,0	0,3			
	6	0,5 - 1,2				
	18	8,3 - 9,1				
200	6	0,3 - 0,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			4 Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel	Control rod travel				Control lever deflection in degrees	rev/min	Control rod travel	rev/min	Control rod travel
1	mm	mm rev/min	4	5	6	7	8	mm	10	mm
ca. 72	1250	16	without auxiliary spring			ca. 22	250	5,5	750	0
	1280	10,6					100	19 - 21	400	0
	1310	3,6					250	5,2-5,8	290	1,2 - 1,8
2a	1280	9 - 12	with auxiliary spring				300	3 - 4,5		
	1300	2,4- 8					350	0 - 2,8		
	1350	0 - 2					450	0 - 1		
	1400	0 - 1								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational-speed limit		3a Fuel delivery characteristics		Starting fuel delivery Idle		4a Idle stop	
Test oil temp 40°C (104°F)		Note changed to) rev/min							
rev/min	cm ³ /1000 strokes	3		rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2			4	5	6	7	8	9
750	32,5 - 34,5	1210							
Y									
750	34,5 - 36,5	1260							

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 DAI 4,6 1 1
Edition 3.64

En

PES 6 A 70 B RS 64
RS 64 z*

RQV 250-350/1500 A 139

supersedes 1.5.61
company: Daimler-Benz
engine: OM 312
OM 321*

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,9 + 0,1$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,5 - 7,0	0,3			
	6	1,2 - 1,9				
	18	11,1 - 11,9				
200	6	0,6 - 1,5				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel ①	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③	rev/min 10	mm 11
62±1,5	1500 1550 1600 1650 1710	15 - 18 9 - 14 2,6-9,8 0 - 5,5 0	42±1,5	300 400 500 1250 1430	14,7-15,3 9,5-15 3 - 4 3 - 4 0	10±1,5	250 300 350 430	6 - 8 4 - 7 1,5-4,5 0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery Idle switching point ⑥		Torque-control ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
* 1000	43,5-45,4							
1000	49,5-51,5	1510 - 1530			100	mind.7,9	350	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 DAI 4,61(4,61 1)

Edition 3.64

En

PES 6 A 70 B 410 RS 64

RQV 250-650/1400 A 139

supersedes

4.56

company:

Daimler-Benz

engine:

OM 312

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $1,9 + 0,1$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,5 - 7,0	0,4			
	6	1,2 - 1,9				
	18	11,1 - 11,9				
200	6	0,6 - 1,5				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
65±1,5	1400	15 - 18		650	15		100	6,5 - 8		
	1420	13 - 16,8		700	8 - 13,2		200	5,6-7,6		
	1500	6,3- 11,5	54±1,5	800	2,7-3,4	10±1,5	400	2,5-4,7		
	1580	0 - 6,2		1400	2,7-3,4		500	0 -2,4		
	1670	0		1510	0		580	0		
						3a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1380	46,5-48,5	1405 - 1420					650	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

BOSCH

Geschäftsbereich KH Kundendienst Kfz-Ausrüstung.
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 DAI 4,6 x 1

Edition 3.64

En

PES 6 A 70 B 410 RS 64
RS 1034

RQV 250-1450 A 140 D

supersedes

1.5.61

company:

Daimler-Benz

engine:

OM 312

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,5 - 7,0	0,4			
	6	1,2 - 1,9				
	18	11,1 - 11,9				
200	6	0,6 - 1,5				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
66±1,5	1450 1500 1550 1630 1730	15 - 18 11 - 15 6,5-12,5 0 - 7 0				10±1,5	200 250 350 600 800 950	5,6- 8 4,4-6,8 3,6-4 2,4-4 0,6-2 0	1450 1200 800 500	0 0,5-0,7 0,8-1,0 0,8-1,0

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed ②b limitation intermediate speed ④a	Fuel delivery characteristics ⑤a high idle speed ⑤b		Starting fuel delivery ⑥ idle switching point		Torque-control ⑤ travel	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
1000	45,5-47,5	1455-1470	500 700 1450	45,5-49,5 46,5-49,5 46,5-49,5	100	mind.7,9		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

BOSCH

Geschäftsbereich KM Kundendienst Kfz-Ausrüstung
© by Robert Bosch GmbH, D-7 Stuttgart 1 Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH

L7

L7

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 DAI 8,3b
Edition 3.64

En

PES 6 A 80 B 410 RS 64
RS 64 z
C RS 1034

RQ 250/1075 A 83D

A 148 D

supersedes 15,7.61
company: Daimler-Benz
engine: OM 315
(145 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,6 - 6,0	0,4			
	6	2,4 - 3,0				
	15	11,8 - 12,8				
200	6	1,5 - 2,2				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
rev/min 1	Control rod travel mm 2	Setting point rev/min 3	Control rod travel mm 4	Test specifications Control rod travel mm 5	rev/min 6	Setting point rev/min 7	Control rod travel mm 8	Test specifications rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
1000	14,6-15,4	1000	15	1075 1120 1160 1190	14,8-15 3 - 10,8 0 - 5 0	530	0	100 250 350 430	7 - 8,2 4,3- 6,6 1 - 3,5 0	400 450 500 650	16 - 21 16 - 16,6 15,9-16,3 15 - 15,1

Torque-control travel
on flyweight assembly dimension a = 0,3 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
RS64 1000	95,0-97,0	500	500 700 1050	93,0-97,0 92,0-96,0 95,0-98,0	100	mind.13,4
						./.

Checking values in brackets

Testoil-ISO 4113

L8

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

L8

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation RQV Control-rod stop RQ	Fuel delivery characteristics		Starting fuel delivery	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes
1	2	3	4	5	6	7

RS64z

1000 71,0 - 73,0

400

 700 67,0 - 70,0
 1050 71,0 - 74,0

100 mind. 13,4

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 DAI 5,1 g

Edition 3.64

En

PES 6 A 70 B 410 RS 64,z RQV 300-700/1500 A 207 D
C 410 RS 1034,z A 208 D
AA 207 D

supersedes 10.62
company: Daimler-Benz
engine: OM 321

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,5 - 7,0	0,4			
	6	1,2 - 1,9				
	18	10,9 - 11,9				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed				Intermediate rated speed				Lower rated speed				Sliding sleeve travel	
Degree of deflection of control lever	rev/min	Control rod travel mm	Control rod travel mm/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Control rod travel mm/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Control rod travel mm/min	rev/min	mm
1	2	3	3a	4	5	6	6a	7	8	9	9a	10	11
66±	1500	15 - 18			650	9,7-10,3			200	6,2- 8		1500	0
	1550	10 - 14,5			800	3 - 8,5			300	5,3-7,8		750	0
	1600	4,8 - 10,8	44±1,5		900	3 - 4		10±1,5	450	3,5-6		600	0,1-0,3
	1650	0 - 6,8			1250	3 - 4			600	0,4-3,3		500	0,3-0,5
	1730	0			1440	0			730	0		350	0,4-0,6

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed		Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control	
rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4a	4	5	6	7	8	9
1000	49,5 - 51,5	1510-1530		500	51,0-54,0	100	mind. 7,9	700	
				700	51,0-54,0				
				1500	50,5-53,5				
									./.

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

L10

L10

BOSCH

Geschäftsbereich KH Kundendienst. Kfz-Ausrüstung.
© by Robert Bosch GmbH, D-7 Stuttgart 1, Postfach 50 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation RQV Control-rod stop RQ	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7
1000	43,5-45,5	1510 - 1520	500	45,5-48,5	100	mind.7,9
			700	42,5-45,5		
			1500	46,5-49,5		700

①

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 DAI 8,3 t

Edition 3.64

En

PES 6 A 90 B 410 RS 174

RQV 250 - 900 A 112

supersedes

1.61

company:

Daimler-Benz

engine:

OM 315 mA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ² /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,9 - 6,4	0,4			
	6 15	2,3 - 3,1 14,2 - 15,5				
200	9	3,8 - 4,6				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	mm 11
65±1,5	900 920 960 1000 1060	15 - 18 12 - 15,4 5,2 - 10,6 0 - 6,2 0				10±1,5	100 250 350 500 640	7,6-8 5 - 7 3,4-4,2 1,6-2,8 0		
						③a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ②		Rotational-speed limitation intermediate speed ②b	Fuel delivery characteristics ⑤a		Starting fuel delivery idle switching point ⑥		Torque-control travel ⑤	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9
900	101 - 103	910 - 930						

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 DAI 5,1d

Edition 3.64

En

PES 6 A 70 B RS 64 RQ 250/1500 A 146 D, 302 D
 RS 64 x, RS 64 y
 RS 64 z, RS 64 w
 RS 317
 RS 1034

supersedes 3.1.61
 company: Daimler-Benz
 engine: OM 321

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	6,5 - 7,0	0,4			
	6	1,2 - 1,9				
	18	11,1 - 11,9				
200	6	0,7 - 1,5				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check rev/min 1		Full-load speed regulation Setting point rev/min 3				Idle speed regulation Setting point rev/min 7				Torque control rev/min 11	
Control rod travel mm 2		Control rod travel mm 4		Test specifications Control rod travel mm 5		Control rod travel mm 8		Test specifications Control rod travel mm 10		Control rod travel mm 12	
1450	14-14,8	1450	14,4	1500 1520 1560 1600 1630	14,2-14,4 10 -14,4 0 -10 0 - 5 0	530	0	150 200 300 400 430	7 - 8 6 - 8 3,3-5,8 0 -1,7 0	400 500 600 800	16 - 21 15,4-16 15 -15,4 14,4-14,6

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6	
cm ³ /1000 strokes 2				cm ³ /1000 strokes 5		cm ³ /1000 strokes/mm 7	
See page 2!						./.	

Checking values in brackets

Testoil-ISO 4113

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung.
 © 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
 Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

L15

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Test oil temp 40°C (104°F)		Rotational-speed limitation RQV Control-rod stop RQ	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm ³ /1000 strokes 2	rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7

RS 64

1000	49,0 - 51,0	500	500	51,0 - 54,0	100	mind. 7,9
			700	51,0 - 54,0		
			1480	50,5 - 53,5		

RS 64 x

1000	43,8 - 45,8	500	500	45,8 - 48,8	100	mind. 7,9
			700	45,8 - 48,8		
			1480	45,3 - 48,3		

RS 64 y

1000	31,5 - 33,5	500	500	33,0 - 36,0	100	mind. 7,9
			700	33,0 - 36,0		
			1480	32,0 - 35,0		

RS 64 z

1000	35,5 - 37,5	500	500	37,5 - 40,5	100	mind. 7,9
			700	37,5 - 40,5		
			1480	37,5 - 40,5		

RS 64 w

1000	51,5 - 53,5	500	500	53,0 - 56,0	100	mind. 7,9
			700	53,0 - 56,0		
			1480	53,5 - 56,5		

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 DAI 7,3 e

Edition 3.64

En

PES 6 A 80 B 410 RS 64
RS 64 z
RS 1034

RQ 250/1075 A 19 D *
RQ 250/1100 A 19 D**

supersedes
company:
engine:

3.1.61
Daimler-Benz
OM 325

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15 + 0,1$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,5 - 6,0	0,4			
	6	2,2 - 3,0				
	15	11,6 - 12,8				
200	6	1,3 - 2,2				

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

RQ 250/1075 A 19 D *

Checking of slider PRG check rev/min 1		①		Full-load speed regulation Setting point rev/min 3		④		Idle speed regulation Setting point rev/min 7		⑤		Torque control rev/min 11		③	
Control rod travel mm 2		Control rod travel mm 4		Control rod travel mm 5	rev/min 6	Control rod travel mm 8		Control rod travel mm 10		Control rod travel mm 12		Control rod travel mm 12		Control rod travel mm 12	
1000	14 - 14,8	1000	14,4	1075	14,2-14,4			150	7 - 8	400	16 - 21				
				1100	8,6-13			250	5 - 7	600	15,5-15,8				
				1140	0 - 7,4			350	1,3- 4	800	14,9-15,2				
				1190	0			430	0						

Torque-control travel
on flyweight assembly dimension a = 0,5 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

②		③a		③b		⑥	
Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3		rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
RS 64							
1000	75,0 - 78,0	700		700	74,5 - 76,5		
				500	71,5 - 75,5		
							./.

Checking values in brackets

Testoil-ISO 4113

BOSCH

Geschäftsbereich KH Kundendienst, Kfz-Ausrüstung
© 1930 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany.
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

B. Governor Settings

RQ 250/1100 A 19 D **

DAI 7,3 e

-2-

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel	rev/min	Control rod travel	Control rod travel	rev/min	rev/min	Control rod travel	rev/min	Control rod travel	rev/min	Control rod travel
1	mm	3	mm	mm	6	7	mm	9	mm	11	mm
1000	14,4-15,2	1000	14,8	1100 1130 1160 1220	14,4-14,8 7 - 13 0 - 9 0	540	0	200 250 350 440	6 - 8 5 - 7 1,5- 4 0	500 700 900	15,8-16 15,4-15,7 14,8-15

Torque-control travel
on flyweight assembly dimension a = 0,4 mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm	Control rod travel
1	2	3	4	5	6	7	mm
RS64z							
1000	56,3 - 58,3	500	500 700	53,0 - 57,0 54,5 - 57,5	100	mind. 13,4	

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel	rev/min	Control rod travel	Control rod travel	rev/min	rev/min	Control rod travel	rev/min	Control rod travel	rev/min	Control rod travel
1	mm	3	mm	mm	6	7	mm	9	mm	11	mm

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop		Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a		③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm	Control rod travel
1	2	3	4	5	6	7	mm

En Checking values in brackets

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 KHD 8,0 n

Edition 3.69

En

PE 6 A 75 B 420 LS59, 153, 1036

RQ 250/1150 A239D (1)

supersedes 9.67

PE 6 A 75 C 420 LS 1036 Z

RQ 250/1150 AB143D (2)

company: K H D

PE 6 A 85 B 420 LS422,2039

RQ 250/1150 A235D
A432D (3)

engine: F6 L514(125PS)-(1)

F6 L514(115PS)-(2)

BF 6 L514(150PS)-(3)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1,9 + 0,1(7,5) mm (from BDC)

2,15 + 0,1(8,5)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control va ve) mm 6
	9	3,2 - 3,7	0,4		5,0 - 5,6	
1000	6 15	0,9 - 1,7 8,5 - 9,5			1,4 - 2,2 12,4 - 13,2	
200	9	1,9 - 2,8			3,9 - 4,4	

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

..A239D

(1)

Checking of slider PRG check rev/min 1		Control rod travel mm 2		Full-load speed regulation Setting point rev/min 3		Control rod travel mm 4		Test specifications rev/min 5		Idle speed regulation Setting point rev/min 7		Control rod travel mm 8		Test specifications rev/min 9		Torque control rev/min 11		Control rod travel mm 12	
500		15,7-16,3		500		16		1150 1160 1180 1190 1230	13,2-13,8 9 -13,6 0 -11 mind. 6 0	430		0		200 250 290 330	6,5- 8 3,5-6,5 0 - 3 0	600 800 1000		15,9-16 15,2-15,7 14,2-14,6	

Torque-control travel
on flyweight assembly dimension a = 0,8 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1		Control rod stop rev/min 3		Fuel delivery characteristics rev/min 4		Starting fuel delivery Idle speed rev/min 6		Control rod travel mm 7	
1150	67,0 - 69,0	600		600 1000	75,5 - 78,5 70,5 - 73,5	100		mind. 9,9	
									./.

Checking values in brackets

Testoil-ISO 4113

L19

BOSCH

Geschäftsbereich KH Kundendienst. Kfz-Ausrüstung.
© 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1 Printed in the Federal Republic of Germany
Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

B. Governor Settings

.. AB 143 DR (2) KHD 8,0 n -2-

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
500	15,6-16,4	500	16,0	1150 1180 1220 1250	13,9-14,1 3,8-12,0 0 - 5,4 0	430	0	200 250 300 330	6,4-8,1 3,8-6,8 0 -3,4 0	600 800 1000	15,8-16,0 15,2-15,6 14,5-14,8

Torque-control travel on flyweight assembly dimension a = 0,6 mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
1130	65,0 - 67,0	600	600	71,0 - 74,0	100	mind. 9,9

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

.. A 325 D, .. AA 432 D (3)

Checking of slider PRG check		Full-load speed regulation				Idle speed regulation				Torque control	
①		Setting point		Test specifications		Setting point		Test specifications		③	
rev/min	Control rod travel mm	rev/min	Control rod travel mm	Control rod travel mm	rev/min	rev/min	Control rod travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
1050	14,4-15	1050	14,7	1150 1160 1180 1200 1240	14,3-14,7 11,0-14,7 5,0-12,0 0 - 8,0	440	0	200 250 300 340	7,0-8,1 4,2-7,0 0 -3,2 0	500 650 800	15,9-16,0 15,2-15,6 14,7-14,8

Torque-control travel on flyweight assembly dimension a = 0,4 mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery Idle speed	
②		③a	③b		⑥	
rev/min	cm ³ /-1000 strokes	rev/min	rev/min	cm ³ /-1000 strokes	rev/min	cm ³ /1000 strokes / mm
1	2	3	4	5	6	7
1150	80,5 - 82,5	600	800 500	82,5 - 85,5 80,5 - 83,5		

En Checking values in brackets

Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP 001/4 BOS 9,8 c
Edition 5.72

En

PE 6 A 85 B 310 LS 69, 172 RQ 200/950 A103D, 124D
(312)..S191, 312, 337 ..103D, 244D, 328D
C..S2044, 2084 ..244D, 328D, 482D
C, D .. S2084 RQV 200-500/950 AA 462

supersedes 10.64
company: Büssing
engine: U 10

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,15 + 0,1$ mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery "B" u. "C" cm ³ /100 strokes 3	Difference cm ³ /100 strokes 4	Control rod travel mm 2	Fuel delivery "D" cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	12	9,6 - 10,4	0,4	9	4,1 - 4,5	
1000	9	4,9 - 5,5		6	0,6 - 1,4	
200	9	3,9 - 4,4		9	1,4 - 2,2	

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

RQ.. 103D, 124D, 244D, 328D, 482D

Checking of slider PRG check ①		Full-load speed regulation Setting point ①				Idle speed regulation Setting point ①				Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
450	15,7-16,3	450	16,0	970	13,8-14,1	430	0	100	6,8-8,1	400	15,6-16,2
				990	5,0-12,5			180	5,2-7,4	600	14,9-15,3
Breakaway not before n = 970				1010	0 - 8,0			250	2,4-5,0	800	14,1-14,4
				1050	0			330	0		

Torque-control travel
on flyweight assembly dimension a = 0,5 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/mm 7
950	97,0 - 99,0	500	700 500	100,5 - 103,5 107,5 - 110,5	100	mind. 13,4
(increase by $\pm 1,0$ cm ³ !)						./.

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

RQV .. AA 462

Upper rated speed			Intermediate rated speed			Lower rated speed			Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 66	950 1000 1060 1140	15,0-17,8 8,8-13,6 0 - 7,6 0	ca. 54	480 550 650 900 1030	14,7-18,0 3,0-12,0 2,5- 3,5 2,5- 3,5 0	ca. 19	100 200 300 450	6,1-8,0 4,7-7,2 2,4-5,0 0	-	-
						(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control rod stop Test oil temp. 40°C (104°F)		Rotational-speed limitation intermediate speed	Fuel delivery characteristics high idle speed		Starting fuel delivery idle switching point		Torque-control travel	
rev/min	cm ³ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
930	103,5 -106,5	960						

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure CompensatorTest at n = rev/min decreasing pressure - in bar gauge pressure
increasing

Pump/governor	Setting	Measurement	Control rod travel- diminution difference
	Gauge pressure = bar	Gauge pressure = bar	mm

En